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LECTURE I

In the year 1914 Simmonds of Hamburg described two cases of a disease which was ultimately to bear his name (Simmonds, 1914 and 1916). The typical history and post-mortem records may be taken from the work of Riecker and Curtis (1932).

One of the patients, a woman aged 41, complained of progressive weakness and loss of weight. There was no interesting point in either the family or personal history. The patient was married at the age of 20 and had one child, who was living and healthy at the time of consultation. Menstrual periods ceased at the age of 26, whilst at 30 she noticed a lack of sweating. About this time she became very anxious concerning her appearance, since she was obviously ageing very rapidly. The sense of weakness and weariness increased, and at the age of 36 the patient suffered what she termed a stroke, which left paralysis of the right side of the face together with deviation of the right eye. At the present time she suffered from a feeling of chilliness, weakness, poor appetite, and loss of memory. Altogether she had lost some 20 lb. On physical examination the skin was atrophic, dry, and cool. There were definite signs of syphilis, but the blood pressure and reflexes were normal. The basal metabolic rate was minus 28; hæmoglobin, 90 per cent.; and the urine was free from abnormality.

The post-mortem findings from a further series of cases quoted by Riecker and Curtis show in all cases destruction of the anterior lobe of the pituitary, either by tumour or inflammatory process, together with atrophic changes in the liver, pancreas, suprarenals, thyroid, and ovaries or testes. A detailed study of all the published cases shows that this is indeed a general syndrome commencing with a destruction of the anterior lobe of the pituitary followed by subsequent degeneration of the organs mentioned above.

My first task as Goulstonian lecturer is thus completed, in spirit if not literally; for Dr. Goulston in his bequest laid down that the lectures should be illustrated—

"on some dead body if possibly it can be procured, which shall then and there be dissected for the disease treated of, and shall afterwards be buried."

Clinical study and gross morbid anatomy must be the starting point of all medical investigation, and it was clearly the wish of the founder of these lectures that the theories propounded in them should rest on this sound foundation. In Simmonds's disease we see incontrovertible evidence that destruction of the anterior lobe of the pituitary is attended with a slow degeneration of various organs, but more particularly of the gonads, the pancreas, suprarenal, and thyroid. Taking these fundamental observations as the basis of these lectures, it is proposed to push the dissection clearly wished for by Dr. Goulston to the very finest possible limits, and I hope to be able to show you that it is now possible to carry the dissection actually down to the stage of molecular structure. By this study we shall be able to visualise the type of key that the body manufactures to open and close its various locks; and I hope also to be able to show you that it is possible for the organic chemist to manufacture keys entirely of his own design with which he can open these natural locks. And from this research it is possible to prophesy that the organic chemist and the pharmacologist are entering an entirely new field of therapeutic research.

Functions of the Anterior Pituitary

It is difficult to arrive at the first historical connexion of the anterior lobe of the pituitary as a controlling factor in the whole of the body. One may divide the earlier experiments into firstly clinical observations, secondly a study of the effects of hypophysectomy, and thirdly the effect of the administration of extract of the anterior lobe.

That the pituitary gland as a whole was involved in certain general diseases has been known for many years. The first clinical observation was that of Marie (1888) in 1886, who succeeded in establishing a connexion between the disease acromegaly and the pituitary. He was under the impression that the disease was associated with hypofunction of the gland, but to-day the reverse is held to be true. The other great clinical step in establishing the relationship of the anterior lobe of the pituitary to other organs of the body has already been referred to—namely, the study of cases of Simmonds's disease.

Turning to the question of hypophysectomy, it was early demonstrated by Paulesco (1908) that the removal of the pituitary gland as a whole is followed by death in certain animals. This was confirmed later by Cushing and his collaborators (Reford and Cushing, 1909; Crowe, Cushing, and Homans, 1910). Cushing was also able to demonstrate that partial hypophysectomy resulted in an increase of subcutaneous fat and a cessation of sexual activity (Cushing, 1909). As the result of his researches Cushing and his co-workers were definitely able to refer the sexual control to the anterior lobe of the pituitary. The greatest advances in the subject, however, were made following the perfection of methods of hypophysectomy on small animals. The first experiments with rats were made by Smith (1927,[1] 1930) in 1927. These experiments indicated quite clearly that a condition of infantilism persists if the operation be performed before puberty, and if performed after puberty, cessation of the œstrus cycle together with atrophy of the ovaries resulted. There is now an extensive literature indicating the relationship between the anterior lobe of the pituitary and the sex organs as studied by this method.

The next step was made by a study of the effect of implants of the pituitary gland. In the year 1926 Zondek and Aschheim (1927) and independently Smith (1926 and 1927[2]) published the results of implants in animals. It was shown that the implantation of pituitary into a hypophysectomised animal induced growth of follicles together with corpus luteum formation. When implanted into immature normal females the ovaries became enlarged due to growth of follicles and the formation of corpora lutea; the uterus and vagina increase in size and œstrus appears. In immature male animals the results are not so striking, but with the continuation of grafts it is found that enlargement of the testes results, and, according to some, premature spermatogenesis occurs (Voss and Loewe, 1928). According to Moore and Price (1931), however, whilst they confirm the enlargement of the seminal vesicles and prostate, there is no evidence of premature spermatogenesis.

The final proof of the relationship of the anterior lobe of the pituitary to the sex and other organs is demonstrated by the preparation of the gonadotropic hormone from extracts of the anterior lobe of the pituitary. There appears to be little doubt that the first active extracts of the pituitary gland were obtained in Evans's laboratory in 1928 (Evans and Simpson, 1928, 1929). It was shown that these extracts were capable of inducing hypertrophy of the ovary and puberty in the immature female animal.

* The Goulstonian lectures for 1934, delivered before the Royal College of Physicians of London on March 6th, 8th, and 13th. Lectures II. and III. will appear in forthcoming issues.

Having established the historical foundation for the doctrine of the pituitary control of the sexual cycle, it will suffice to proceed with the description of the hormones according to the state of our knowledge at the present moment, since any attempt at historical or chemical sequence would prove too lengthy.

The present-day view is that the anterior lobe of the pituitary produces the following hormones: (1) growth hormone; (2) prolan (A and B); (3) thyrotropic hormone; (4) pancreaticotropic hormone; (5) adrenotropic hormone; (6) parathyrotropic hormone.

With the growth hormone we are not concerned at the present time.

Prolan

Prolan is the first link between the pituitary gland and the sex organs. It passes in the blood stream to the ovary and testes and there initiates changes which are responsible for the secondary sexual characteristics. The stimulation of the testes by prolan results in the production of its own internal secretion, the male sex hormone.

THE MALE HORMONE

The study of the male sex hormone dates back very considerably, and it is indeed difficult to be certain who made the first definite experiments.

As early as 1849 Berthold (1849) succeeded in producing the familiar comb and wattles in a capon by the transplantation of testis tissue. This experimental demonstration of the stimulating action of prolan upon testis function is a striking confirmation of the experiments quoted earlier, in which it was shown that implants of the pituitary gland in immature animals produced similar activation. Perhaps the most familiar investigation is that of Brown-Séquard (1889), published in the year 1889. This much quoted research must, I fear, be regarded in the light of modern knowledge with much suspicion. It will be remembered that Brown-Séquard, then an old man, injected a simple extract of testes into himself and described very clearly a general feeling of well-being which one feels could only have been the result of suggestion. Judging from our clinical experience with other hormones, and particularly with the female sex hormone, even if Brown-Séquard's extract had contained any active testis hormone, the quantity present would have been so slight as to have no effect.

There can be little doubt that the first clear-cut experiments were made by Pézard (1911 and 1920) in the year 1911. He repeated the earlier work of Berthold and was one of the first to realise the great importance of the capon as a test object. It is a well-known fact that if the cockerel be completely caponised, the characteristic head furnishings atrophy and almost completely disappear. If a testis be grafted into such a bird, a successful operation is followed by fairly rapid growth of the comb, wattles, and the development of secondary sexual characteristics. Pézard injected intraperitoneally into his capons a preparation constituted of crushed hog cryptorchid testes for five months. The combs grew rapidly, and regressed as soon as the injections were stopped. It appears highly possible that some at least of Pézard's results were due to actual survival of the cells of hog testes, since attempts to repeat his experiments with extracts of testes in quantities similar to those he used have proved completely negative.

From 1911 onwards a series of doubtful experiments were made by a number of workers, but since we are only concerned here with the main landmarks, we must pass to the year 1927. McGee (1927) proved conclusively that an alcoholic extract of bulls' testes contained an active principle capable of causing growth in the comb. He showed that if the alcohol were evaporated off under reduced pressure, the lipins remaining were quite stable and could be injected either in aqueous suspension or in oily solution. These results were quickly confirmed by a number of workers including myself and my colleagues.

A long series of investigations were then made on the sensitivity of the comb-growth test. It is claimed by many workers that the results are quantitative, that is to say, if one injects double the quantity of hormone the comb will grow twice as long. This view has been severely attacked by Greenwood and myself, and we showed that the response is by no means quantitative, and that very large numbers of birds would have to be employed before an accurate assay could be obtained (Dodds, Greenwood, and Gallimore, 1930; Blyth, Dodds, and Gallimore, 1931).

The chemical study of the hormone could not progress to any great extent until a new source of the material other than testes could be obtained. The presence of the hormone in urine was discovered almost simultaneously and independently by a number of workers (Loewe, Voss, et al., 1928; Funk, Harrow, and Lejwa, 1930; Dodds, Greenwood, and Gallimore, 1930). All the workers quoted here investigated very carefully the chemical properties of their extracts. In my laboratory it was shown that the material could be obtained as an oil which was capable of vacuum distillation, and its properties were very similar to those of the œstrus-producing hormone. We were able to show that it would also resist saponification with alkalis such as barium hydroxide, and in addition to causing comb growth, we were able to show that the extract would produce great enlargement of the seminal vesicles as had been shown by workers with cruder extracts (Dodds, Greenwood, Allan, and Gallimore 1930).

The greatest advance in the chemistry of the compound was made by Butenandt (1931) who succeeded in obtaining a crystalline preparation by fractional distillation. He obtained a series of derivatives such as a diol and an oxyketone and he established with fair certainty that the molecule belonged to the same group as that of œstrin and the sterols. Since, however, this work is so closely connected with that of œstrin, I propose to leave this problem until we discuss the molecular construction of the female sex hormone (Butenandt, 1932–33).

PROLAN AND THE OVARY

To turn to the ovary, prolan passes in the blood stream from the pituitary gland to this organ and stimulates the ripening of the follicle through the characteristic stages of the corpus hæmorrhagicum followed by rupture and discharge of the ovum, subsequent conversion to corpus luteum, and final fibrosis, the corpus albicans. By the administration of prolan it is possible to demonstrate the formation of corpora hæmorrhagica and corpora lutea. The diagram indicates these relations (Fig. 1).

According to the views of Aschheim and Zondek, the prolan can be divided into two factors which are referred to respectively as A and B; prolan A being responsible for the formation of the corpus hæmorrhagicum, and prolan B for the formation of the corpus luteum. Many workers however doubt the existence of the two factors, and in any case it is safe to say that the separation has not been established by unequivocal experiments.

The main function of the prolan is therefore to initiate the maturation of the follicle followed by ovulation and the formation of corpus luteum. When the ovary is passing through these changes it also produces its own internal secretion, œstrin, which passes from the ovary to the uterus and the vagina, and produces the characteristic changes of œstrus.

Actions of Œstrin

It was not until an accurate method of testing for this hormone was devised that research on the chemical nature of œstrin could be undertaken. The test consists in studying the effects of injections of œstrin upon castrated rats or mice.

In these rodents the changes accompanying the reproductive cycle are characterised by a certain cell-picture in the vaginal contents. It is usual to classify the periods in the œstrus cycle as di-œstrus, pro-œstrus, œstrus, and meta-œstrus. If a vaginal smear be made of an animal in the di-œstrus or resting stage, and it be stained in some suitable manner, it will be noticed that the field will be crowded with leucocytes. The animal is incapable of

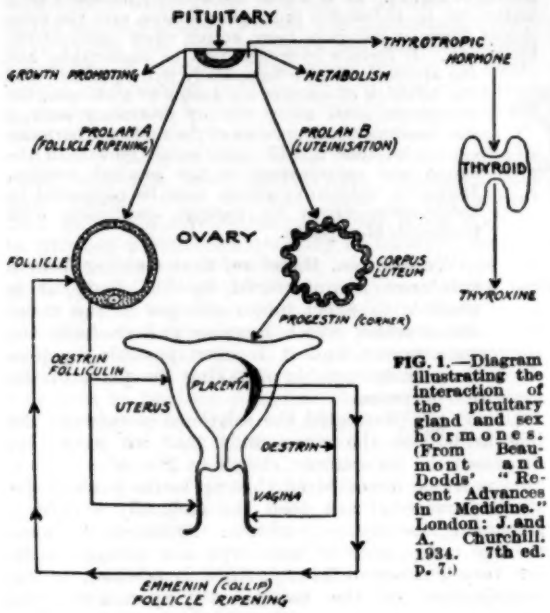


FIG. 1.—Diagram illustrating the interaction of the pituitary gland and sex hormones. (From Beaumont and Dodds' "Recent Advances in Medicine." London: J. and A. Churchill. 1934. 7th ed. p. 7.)

impregnation and it is in this condition that the castrated or ovariectomised animal remains for all time.

After five days or so the di-œstrus period gives way to a period of pro-œstrus, in which it is found that the leucocytes have disappeared from the field and a number of nucleated epithelial cells have appeared. At this stage the animal is incapable of receiving the male, but in a few hours this period changes to one of full œstrus when it can be seen that the field is occupied by non-nucleated cornified cells. The appearance is characteristic even to the naked eye and cannot be mistaken by the experienced observer.

At this stage the animal receives the male and is capable of becoming impregnated. If this does not occur, nucleated epithelial cells begin to appear again, and leucocytes characterising the stage of meta-œstrus; and finally di-œstrus is reached. There are various other changes which occur in the body at the height of œstrus. The uterus enlarges and the cavity becomes distended with fluid. All these changes occur as the result of œstrin secreted presumably by the ovaries. If the ovaries are removed the animal remains in a permanent state of di-œstrus, and it has been found possible to use such animals for investigating the activity of ovarian extracts.

The first successful experiments on these lines were performed by Allen and Doisy (1923). These observers were able to show that an alcoholic extract of ovaries was capable of inducing all the stages of œstrus in castrated animals, thus obtaining absolute evidence of the activity of a stable extract. From this time onwards rapid advances were made in the chemistry of the compound. The distribution was rapidly worked out, and the substance was found to be present in the ovaries and follicular fluid; it was also found in large quantities in the mammalian placenta. Unfortunately alcohol and volatile solvents will extract from body tissues a complex group of substances all with very similar properties, and consequently very little progress was made in the determination of the exact chemical constitution of the œstrus-producing hormone. It was, however, quickly proved to contain only carbon, hydrogen, and oxygen, but its separation from inert contaminants proved an all but impossible task.

Another great step was made through the discovery by Aschheim and Zondek (1927) that the œstrus-producing hormone was excreted in the urine in mammalian pregnancy, and moreover, in this situation it is not contaminated with the mass of substances that are found in alcoholic extracts of tissues.

At the same time Aschheim and Zondek also noticed the presence of prolan in the urine, and upon this discovery is based their well-known reaction for pregnancy. Œstrin may appear in conditions other than pregnancy, but apart from hydatidiform mole, the presence of prolan in the urine in any quantity is a specific sign of pregnancy.

A simple benzene extract of the urine was found to yield large quantities of the œstrus-producing hormone in a state of purity which has hitherto been deemed almost impossible, even with the most elaborate purification. Groups of investigators throughout the world commenced to study chemical properties, and in a relatively short time the hormone was obtained in crystalline form. Doisy and his collaborators in America (Doisy, Veler and Thayer, 1929 and 1930) and Butenandt in Germany (1929), independently and almost simultaneously, announced the crystallisation of the substance. At a later date Marrian (1930) and Laqueur and his co-workers (1929, 1930) also obtained crystalline products.

Chemical Relationships of Œstrin

It must be remembered that up to this date no one had any idea as to what group of organic compound œstrin belonged. The properties would fit in with a number of well-known groups, and the only remarkable features concerning the crystals were, first their extreme potency—namely, some 10,000,000 international units per gramme—and secondly their stability towards organic reagents and alkalis. I do not propose to trace the various steps leading to the adoption of the formula now believed in, since this would take too long and would prove tedious except to pure organic chemists. A number of workers have taken part in this important research, and amongst their names are to be found those of Doisy, Butenandt, and Marrian (see general references). We believe to-day that œstrin has the following formulæ (Fig. 2):—

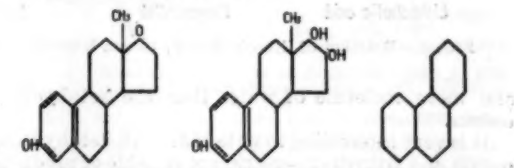


FIG. 2.—Ketohydroxy œstrin. Trihydroxy œstrin. Phenanthrene.

It belongs to a group known as condensed carbon ring compounds and consists of a series of three six-membered rings fused together with a five-membered ring at one end of the molecule. It is a derivative of phenanthrene which is shown here, and until comparatively recently it was not known that this group of bodies occurred in the animal organisation. The phenanthrene molecule has been known for many years to be possessed by certain drugs such as morphine, which, however, has quite a different molecule.

The condensed carbon ring system is now known to be of very great importance among the organic compounds occurring in the body. These include cholesterol and its derivatives the bile acids, ergosterol and calciferol, and the male and female sex hormones. One can state, therefore, that the organic chemist has provided the physiologist, biochemist, and physician with an entirely new problem in metabolism—namely, that of the sterols or condensed carbon ring compounds. The formula shown in Fig. 3 indicates the relatively close relationship of the important members of this group.

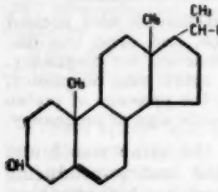


FIG. 3.—Cholesterol.

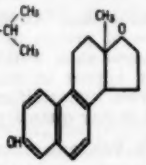


FIG. 4. Equilenine.

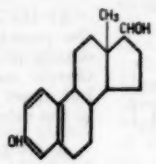


FIG. 5. Dihydrofolliculin.

In general it may be stated that the active members consist of a phenanthrene molecule with a five-membered ring attached to one end of the molecule, and that various polar groups, side chains, double bonds, &c., are possibly associated with the different types of activity of the different molecules. One of the most interesting observations in connexion with the œstrus-producing hormone arose through a consideration of its molecular structure. The first compound isolated in the crystalline form by Doisy had the formula $C_{18}H_{22}O_2$ and it has proved on subsequent investigation by Butenandt and others to be ketohydroxy-œstrin of the formula already given. On the other hand, the substance isolated by Marrian (1930) has been proved by them to have the empirical formula $C_{18}H_{24}O_3$. It therefore contains one more molecule of water than the ketohydroxy-œstrin.

It is very interesting to note that both ketohydroxy-œstrin and trihydroxy-œstrin are capable of producing œstrus in animals, but that the latter is much less active than the former. Here is an example of a hormone that may have slight differences of molecular construction and still retain its activity.

Marrian also succeeded in isolating another interesting compound that is quite inactive in the doses in which it has been tested up to the present. It is an alcohol which is known as pregnandiol (Marrian, 1929).

Girard (1933) has isolated a series of interesting compounds from the urine of the pregnant mare, one of which he terms equilenine. The formula of equilenine is shown in Fig. 4, and it can be seen that it differs remarkably from the formula of the œstrus-producing hormone, in that two of the rings are aromatic.

Yet further interesting experiments may be performed by modifying the construction of the molecule. Thus it may be shown that if the follicular hormone be partially hydrogenated and two atoms of hydrogen be added, the compound known as dihydrofolliculin is produced (formula shown in Fig. 5). In this case the activity increases from 10,000,000 to 40,000,000 units per gramme, and the compound becomes infinitely more active when administered by mouth. If further hydrogenation be undertaken and the aromatic ring be completely hydrogenated with the addition of another six atoms of hydrogen, the compound loses its power of producing œstrus, but develops the properties of the male sex hormone—namely, that it will cause comb growth in the capon and enlargement of the seminal vesicles. Moreover, trihydroxy-œstrin may be converted to ketohydroxy-œstrin by vacuum distillation over potassium bi-sulphate.

We can see, therefore, that starting from a substance manufactured by the body, it is possible to effect minor changes in the molecular construction which increase and decrease the œstrogenic power, and it is even possible to produce compounds capable of taking the place of the male sex hormone.

Girard has illustrated the relationship between the bile acids and the compounds that we have just discussed, in the manner shown in Fig. 6.

It must be remembered that up to the present the starting material has been the naturally occurring substance, ketohydroxy-œstrin. Attempts to synthesise compounds of this type are fraught with the very greatest difficulty, since in addition to the complication of the individual preparations, the question of stereo-isomerism enters.

Clinical Use of Œstrin

It might perhaps occur to the pure clinician to inquire what is the practical outcome of all this organic chemistry. Fortunately it is very easy to answer this question.

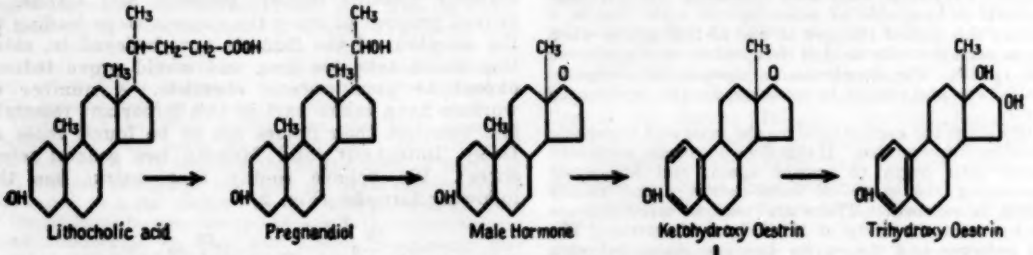
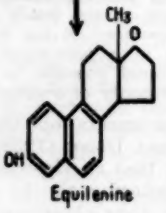


FIG. 6.—Relation of lithocholic acid to sex hormones (after Girard).



Equilenine

All experienced clinicians are aware of the very unsatisfactory results obtained by means of ovarian therapy, and it is safe to say that most gynæcologists of experience regard all methods of substitution therapy as valueless. The reason for this is quite apparent if a moment's consideration be given.

If we take the mouse unit as the unit of œstrin, we know that one mouse unit will produce œstrus in a mouse. Marrian and Parkes (1930) have shown that it is necessary to give some 200 to 300 units in order to produce the full œstrus together with

uterine changes; in other words, some 300 units must be administered before the full physiological results can be obtained and the animal will accept the male. Parkes and I were able to show that provided the same method be employed, the rat unit is ten times the mouse unit—in other words, in direct proportion to the body-weight. Therefore 3000 units would have to be given to a rat to produce the full physiological change. Parkes and Zuckerman (1931) have shown that the ovariectomised baboon requires a quantity of œstrin in direct proportion to its body-weight, and arguing on these lines it is obvious that a woman would require some 500,000 international units of œstrin to produce a physiological effect.

At a meeting of the Royal Society of Medicine some time ago these figures were mentioned and were treated with derision, since it was argued that under no circumstances would it be possible to produce a sufficient quantity of material for the treatment of even a few cases, and in any case the expense would be prohibitive. At a meeting of the same society on Feb. 13th, 1934, C. Kaufmann described his experiments with women who had undergone the operation of complete ovariectomy but with the uterus still intact. He described how he was able to produce complete menstruation by the administration of some 500,000 to 1,000,000 units of œstrin together with a small quantity of the corpus luteum hormone. I have also been able to repeat these observations and to check the result by curettage. Kaufmann (1934) proved conclusively that it is possible to produce a complete menstrual period in an ovariectomised woman, and also to cause enlargement of the uterus in cases of infantilism; and at the same time to treat menopausal symptoms with huge doses of the œstrin.

These remarkable investigations would not have been possible but for the elaborate and painstaking chemical work that I have described. The study of the methods of separation which resulted in a very good commercial yield of ketohydroxy-œstrin, and the brilliant discovery of Schwenk and Hildebrandt in Schoeller's laboratory (1933) that the partially hydrogenated product enabled the yield to be quadrupled, has made it possible to produce œstrin in sufficient quantities for this entirely new branch of therapeutics to be opened up.

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INTERNATIONAL COÖPERATION IN PUBLIC HEALTH

ITS ACHIEVEMENTS AND PROSPECTS *

By Sir GEORGE S. BUCHANAN, C.B., M.D., F.R.C.P. Lond.

LECTURE II

Cancer Studies

PERSONALLY I have always opposed proposals that the League's Health Organisation should enter on the road of conferences on cancer at large; we are not strong enough to do them well, nor do I believe that much good would come of them from the official point of view. But still, cancer is among the greatest of the causes of mortality, and all Government health services, sooner or later, must occupy themselves with cancer questions. At Geneva we have selected two lines: first the comparison of national cancer statistics, which occupied us from 1923–27; and later, the results of radiological treatment of cancer of the uterus. For both there were special reasons.

Comparative Studies.—A Cancer Commission of the Health Committee, of which I had the honour of being President, was appointed in 1923 and reappointed in 1926. Up to 1927 the principal work of this Commission consisted in making serious endeavours to ascertain the different causes which produced the very notable difference in the mortality from cancer in certain, mainly European, countries. The countries in question all possessed national mortality statistics for a long series of past years, and there was no prima facie reason to consider any one of them to be more favourably placed than the others in regard to accurate diagnosis of cancer as a cause of morbidity or mortality. The sites chosen for study were the breast and uterus, organs for which on the one hand diagnosis of the cause of death is relatively easy, and on the other hand the mortality differences between the countries was most striking.

The inquiry was pursued by expert statistical analysis of massed figures and also by special sampling investiga-

* The Milroy Lectures delivered before the Royal College of Physicians of London on Feb. 27th and March 1st, 1934, with a few subsequent additions of detail. Lecture III. will appear in a coming issue.

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tions organised by the Commission, and numerous useful monographs on different aspects of the question were obtained. When the inquiry was rounded off, in October, 1927, by the summarising report (C.H. 631), there were both failures and successes to record: failures, in that every conceivable method of analysis open to the Commission and its distinguished experts had failed to produce any single clear-cut explanation of the divergencies in the national mortalities from cancer in the countries studied; successes, in that many plausible a priori explanations had been thoroughly tested and found wanting. The ground was cleared of all kinds of misconceptions about the effect of registration systems, age-distribution, marital state, racial proclivity, and the like—work which wanted doing, and could only have been secured by the special international expert methods of inquiry which were followed. And a further and not inconsiderable practical benefit resulted; the so-called "natural" duration of cancer in these sites was determined on a broad basis of observation, while the predominating importance of early diagnosis and early operative (or radiological) treatment was illustrated equally for every country: useful public action for the prevention of cancer of these sites, in present knowledge, consists almost wholly in facilitating this early diagnosis and treatment. Among the British participants in this work grateful mention must be made of Prof. Major Greenwood and Dr. Janet Lane-Claypon.

The Health Committee, in 1928, following the advice of the Cancer Commission itself, decided to regard these comparative inquiries as completed. Their resumption after a few years, perhaps with some new methods of approach, may well prove desirable.

RADIOLOGICAL TREATMENT

The work of the sub-commission appointed on this subject is summarised in a report of June, 1929 (League publication C.H. 788), which—in English-speaking countries at least—has received much attention and been recognised as authoritative. This report set out some very necessary general principles in regard to the use of radiotherapy in general. In addition, the way in which radiotherapy was applied to cancer of the uterus at Paris, Munich, and Stockholm was explained; and the necessity for standardising observations and records, including facts as to recurrence of the growth and length of survival after treatment, was demonstrated.

It emerged from this inquiry that while governments, and hospitals, and philanthropists are spending enormous sums on the purchase of radium and in the provision of other radiological treatment, no satisfactory way of assessing or comparing results of different radiotherapeutic methods can be found unless the principal radium and gynæcological institutes will agree to adopt (1) a standard nomenclature to describe the stages of the disease; (2) an agreed method of case-recording; and (3) a satisfactory system of following up treated cases to ascertain their condition at least three years after treatment.

The recommendations of the Radiology sub-commission, endorsed by the Cancer Commission and the Health Committee, were quite explicit and authoritative on these three requirements. It was then necessary to promote their observance, and in due course to collect the results and submit them to competent expert analysis. For this purpose recourse was had to administrations, institutes, and individuals in a considerable number of countries, which were provided with special case-record books in different languages. It was necessary, moreover, to explain the method which it was desired to follow in some detail, and so far as possible to arrange that some one person in each country would be charged with the distribution of the records and would periodically report on their use. For the United Kingdom this duty has been undertaken by my colleague, Colonel Smallman, and some 30 of our more important hospitals and institutes have for over two years kept particular records of radiologically treated cases of cancer of the uterus on the international form, in addition, in many cases, to the maintenance of other records of the same cases for the purposes of our own Radium Commission. The lines on which an ultimate analysis of these records will be made are to be settled by a conference of gynæcologists and radiologists to be held this year in Zurich, at the same time as the International Radiological Congress. It is impossible to forecast the results, but it seems equally impossible to believe that the examination of data obtained on these uniform lines by so many responsible authorities will not supply a definite and useful addition to knowledge of the subject which would be unobtainable in any other way, and which will itself justify the trouble which has been taken in recording cases and in following them up from year to year to ascertain their after-histories.

I have dealt rather at length with the expert commissions and inquiries undertaken from Geneva into essentially medical subjects as it is a part of the work which is perhaps not as well understood as it deserves to be, and yet at the same time appears to me to offer great advantage to medicine if it is used judiciously and with discrimination and always with the intention that its quality should be such that the professional man and technician will associate good solid work with a League Commission on the subjects he knows about. It is only in this way that the meetings of the "experts"—you must pardon the inevitable Geneva term because of its convenience—can be made more than occasions for an agreeable interchange of platitudes and a search for convenient formulæ to hide divergence of opinion and enable each participant to go on his own way as before. All who take part in these joint inquiries should feel that they have an unusual opportunity which may not recur to gain from pooling knowledge and collectively to advance it. The function of the Health Organisation is the modest but essential one of providing the opportunity; and of seeing that, when appropriate cases arise, medicine obtains the advantages which an experienced international organisation, with its headquarter mechanism, translators, précis writers, and funds can supply with greater ease than another. Given care and thought in the selection of what is appropriate from the side of medical needs I see no reason for any check in the progress which has thus far been made; on the contrary, there is every reason to hope for its extension as its quality becomes better known and more impulses for its continuance come from the medical side in different countries.

General Work of the Health Organisation of the League of Nations

My references to the other directions in which the League of Nations has occupied itself with public health work must be brief; many of them are better known than the essentially medical activities I have just been speaking of. There is a most important service of the League for *industrial medicine*. My reference to it must be brief, since the Conventions and Agreements relating to industrial hygiene, as well as its journal "Occupational Hygiene," are not dealth with by the Health Organisation, with which I personally am familiar, but by a separate medical section of the staff of the International Labour Office, deriving authority from the general duties placed upon that Office in the Covenant.

SERVICE OF INDUSTRIAL MEDICINE OF THE INTERNATIONAL LABOUR OFFICE

This service has an expert staff, budget, and procedure, all under the direction of the International Labour Office, which, though an organ of the League of Nations, has its own constitution and independent international obligations. On the health side, in the United Kingdom, this work naturally comes to the medical branch of the Factory Department of the Home Office. The service was created within the International Labour Office on the recom-

mendation of the Hygiene Commission appointed by the Washington Conference in 1919, and it is charged with the study of health conditions amongst all classes of workers, and with the maintenance of close and constant contact with the government medical departments concerned with the administration of labour legislation. Its principal duties fall into two categories:—

1. The preparation of subjects for consideration by the International Labour Conference, with a view to the adoption of *Draft Conventions and Recommendations* which are eventually submitted to the competent national authority in each country for ratification or other action.

2. The collection and dissemination of information on all matters relating to industrial health, which are likely to be of international interest.

Some 32 international conventions have been concluded to date through the International Labour Office, and have been ratified to a larger or smaller extent by States non-members as well as by States members of the League. Of these, those which have resulted specially from the work of the service of industrial medicine relate to White Lead (1921) and Compensation for Occupational Diseases (1925); while the Governing Body of the I.L.O. is also responsible for other conventions specially concerned with occupational hygiene, such as those on Childbirth (1919), and on the Medical Examination of Young Persons at Sea (1921). Besides effecting these international agreements the Governing Body has in many cases submitted detailed recommendations to Governments on action to be taken in health questions affecting the worker; for example, Anthrax, White Phosphorus (1919), Lead poisoning, Maternity in Agriculture (1921), and general principles of sickness insurance (1927).

The service, under its Director, Dr. L. Carozzi, has organised technical studies on the above and other subjects by means of special expert committees—e.g., for anthrax, lead poisoning, and silicosis—or by means of its Correspondence Committee; the results coming for action to the Governing Body of the I.L.O.

The service has also collaborated with various national bodies in the study of industrial fatigue, the occurrence of tar and pitch cancer and cancer due to mineral oils, and of colour vision tests for railwaymen and seamen. It maintains a continuous review of industrial medical questions which is published by I.L.O. under the name of "Occupation and Health," with a corresponding issue in French. The service at present is giving special attention to the protection of married women in industry, to the pathology and hygiene of workers handling solvents of acetyl and nitro-cellulose, as well as silicosis, on which a special study, greatly aided by Dr. Irvine of Johannesburg, has been made since 1925, with notable practical results.

INTERNATIONAL REGULATION OF OPIUM AND DRUGS OF ADDICTION

I should mention also, but again without attempting to develop the subject, that the Health Organisation of the League, in conjunction with the Paris Office, fulfils certain technical duties in connexion with the organisation at Geneva for the control of opium and other drugs of addiction. The health organisations here have no concern with administrative policy, but they advise when cases are put before them in regard to particular drugs to which the provisions of the Opium Convention, 1925, should apply as being drugs of addiction, or for which exemptions should be allowed. This work, as may be supposed, is confided by both Offices to an expert Commission.

THE HEALTH MISSIONS OF THE LEAGUE

Public health questions have proved a very useful means by which the League of Nations has been able to make its influence felt in different parts of the world, particularly in extra-European countries which have no very strong urge to participate in the many of the political branches of the League's work. Looking down the list of missions, collective or individual, which have been arranged from Geneva, one notes visits for one or other public health purpose to Persia, to the Islands of the Pacific, to Bolivia and Liberia, and to a considerable group of Latin-American countries, in addition to the special attention which has been given to Eastern Europe—e.g., Czechoslovakia, Yugoslavia, and Greece. To this must be added a quite special attention to health conditions in the Far East, which began with Dr. Norman White's mission to Far Eastern countries, particularly on quarantine questions, in February, 1924, and which in recent years have been conducted on a very considerable scale, mainly under Dr. Rajchman's own direction, in China. It is difficult to generalise about these missions. Their objects have been very different, and the choice of personnel, collective or individual, has, of course, depended on the purpose in view. In all cases, however, they have constituted a response from the League to a request from the country or countries concerned for consultation or advice on some administrative question or on some particular matter of disease prevalence. They have resulted at the time in instructive reports, and not seldom the recommendations made in these reports have been the starting point of definite administrative changes, or the foundation of a new school of hygiene, the reorganisation of hospital services, and like matters. The mission has served the purpose of an activator.

These missions have sometimes been conducted by medical officers of suitable nationalities whom the League has borrowed, sometimes by members of the salaried staff of the Health Section at Geneva, and sometimes by a combination of both. They form an excellent example of the principle that countries' members of the League should help each other as far as possible. If rightly carried out, these missions can be so arranged and conducted as to avoid any impression or intention that it is the business of the League's Health Organisation to be in any way executive, or to constitute itself a super-health authority which supervises or criticises the public health administrations of the world. It is particularly important, in my view, that no such impression should be created. Countries have a complete right, subject to the observation of any international agreements to which they are parties, to care for the health of their people in their own way, as their traditions or their policies lead them. I doubt if the world would gain by having stock patterns of administration pressed upon nations by any central authority; I feel sure it would not benefit by stock patterns of national administration in medicine or hygiene. Any recommendations on administrative matters which come from the League must always be considered from this point of view. If, for example, advice were given to all countries in the world which assumed that medicine and public health ought, for choice, to be effected through an all-embracing State insurance system, or ought all to be worked by central authority, it would not help us in the United Kingdom to have such advice thrust on us exotically, even if we favoured the principles. And as we could not favour the principles, we should only weaken the League and waste valuable time, by having to be continually on our defence against them.

Reverting to League missions it is worth noting, in passing, that where the medical side has been only one of the aspects of the mission, the medical representative has sometimes proved so valuable that the League has afterwards used his services for wider purposes. Dr. M. D. Mackenzie's visit to Liberia—e.g., in October, 1931—was followed by his being

designated by the League in the following year to be one of the Commissioners appointed to delimit frontiers and settle intertribal disputes in that country. Similarly, on a larger scale, the energy with which Dr. Rajchman threw himself into the creation and organisation of health services in China under the Nationalist Government has led to his now being seconded from the post of Medical Director to that of the chief representative of the League in China in respect of all technical questions—economics, communications, opium control, &c., as well as health, on which it has been decided to maintain a special liaison between the Chinese National Government and the League. As the expenses of these missions may be considerable, it should be noted that they do not necessarily fall on our health budget; in the case of Latin-America and China they fall on special funds voted by the Assembly.

In connexion with the funds of the Health Organisation, it is well also to note that the normal budget does not allow us at Geneva to undertake work for the suppression of epidemics or give medical services in the case of catastrophes such as floods and earthquakes out of our own funds. Something has from time to time been done in these directions under special funds, notably in the early days of the League. In general, however, any assistance which has been possible to particular nations in times of epidemics has been limited to local visits and advice and not extended to the employment of staffs or the provision of hospital or other material.

INTERCHANGES AND INTELLIGENCE WORK

At an early stage donations from the Rockefeller Foundation enabled the Medical Director to inaugurate a method of mutual instruction in public health administration to be evolved by what is known as the "interchange" system. Two methods are followed under this system. In the first a public health officer, or in some cases a man appointed to a public health post which he has not yet taken up, is given special facilities for visiting selected countries for the purpose of study. This is little more than an extension of what is done, on a larger scale, by the Rockefeller Foundation itself. In the second, "collective" interchanges are arranged—that is to say, a group of medical officers of different countries is brought together for a number of weeks during which it visits a selected country for study of its principal health problems and public health methods. In a few cases also these "collective" interchanges have been specialised to particular subjects—for example, milk control or rural hygiene. The "interchange" system is a distinctive feature in the Geneva work. Not the least advantage of the "collective" interchanges has been that the health authorities of the country visited take pains in advance to consider the questions which their foreign visitors are most likely to ask, and the information which should be prepared for them, so that the visit has produced a number of valuable monographs describing the main lines of medical and public health activities. This has been done, for example, for France, Germany, Switzerland, and Denmark, and, last year, excellently for Poland. Naturally the number of participants from any given country is small but we have secured the benefit for several central or local health officers in the United Kingdom. In the case of visitors to this country, either collectively or individually, we were fortunate at the beginning to secure the assistance of the Society of Medical Officers of Health, while later, the London School of Hygiene and Tropical Medicine undertook to provide an organised centre from which the tours and interviews of foreign visitors are arranged. I may venture here to testify to the smoothness and efficiency with which this work is undertaken at the School and the obligation which the organisers of these interchanges are under to Medical Officers of Health, Directors of Institutes and other bodies for the time and labour which they are frequently asked to sacrifice in giving necessary explanations and demonstrations to our foreign visitors.

Besides using this interchange system to collect and publish information regarding the practice of public health administration in different countries, the medical staff at Geneva sometimes achieves the same object by making visits themselves or arranging for them to be made by others. Some of these inquiries have been concerned with particular aspects of public health work—e.g., rural hygiene or the control over tuberculosis and leprosy; an inquiry into certain aspects of public hospital provision in the United Kingdom is now in progress. Mention should be made here of the series of Statistical Handbooks (for 14 countries, done under the advice of Prof. Major Greenwood) issued as League publications between 1924 and 1928. Their object was to supply for each country an account of the way in which its system of obtaining and classifying mortality statistics has been evolved, and what particular considerations relating to that country must be kept in mind by the student who is using its national death-rates.

Of course, when it comes to obtaining information about the main lines and policy of public health work and medical practice in another country, much care has to be taken by the foreign observer to get the essential points of the picture and set the national practices in their proper relation to the method of government and characteristics of the country concerned. It is by no means easy for the stranger to avoid giving disproportionate emphasis to particular matters which have struck him as novel or unusual. He may create unexpected difficulties by his criticisms, or at the other extreme his reports or observations may be embarrassing to the national administration by the praise which he has given to what those who know consider unsatisfactory. That these difficulties are not insurmountable, especially when the observer is in a position of complete freedom in his reports, has lately been shown by the series of international studies conducted for the Milbank Memorial Fund by Sir Arthur Newsholme and his collaborators, and has been shown also in the reports of experts who have reported for the Health Section of the League. At the present time there is particular value in some of these reports on medical developments abroad. Under the new dictatorships and oligarchies of European countries, entirely new methods of health administration and arrangements for the care of the sick are being introduced and imposed from above, sometimes with all the impulse of a freeing of national spirit and with all the force of modern propaganda. If in the United Kingdom we do things differently for the reason that medical and public health progress is not with us a new thing, but has gone on through generations as part of the normal requirements of our central and local government, it does not follow that our slower evolution has always led us to the points which the countries now starting from scratch are endeavouring to attain by a single jump. Our own progress may not be leading us in the directions being aimed at—for

example, in Poland or in the U.S.S.R.—but it is certainly advisable to realise what the aims and objects of such countries are. In Poland, for instance, during the last few years they have created a huge new system of preventive medicine by means of local health centres under State direction throughout the country, and at the same time have developed their system of health insurance to the extent that 80 per cent. of the population receives treatment under the insurance agencies which is not merely domiciliary, as with us, but includes hospital beds and all kinds of specialist services. In the U.S.S.R. all treatment and prevention of disease are recognised as being from first to last an affair for the State to provide, while it is regarded as legitimate to use the medical services and the results achieved by them as a political weapon in the hands of the Government—for example, as a weapon in the official war against religion. We can, and should, keep our own national lines, but we cannot afford to ignore the results which are being rapidly obtained under these new systems; we should know the facts and learn the lessons they can teach us.

FAR EASTERN HEALTH BUREAU AT SINGAPORE

Sketchy as it necessarily is, my reference to the work of the Health Organisation of the League would be too incomplete without some words about its Far Eastern Bureau at Singapore. The medical secretariat at Geneva has at Singapore a kind of branch office. Its first Director was Dr. Gilbert Brooke, and after him for some years Dr. Gautier, who now directs the publications at the Geneva Office. The office is now filled by Dr. C. L. Park, a senior officer in the Australian Commonwealth Public Health Service, who also brought to it a large experience of the League of Nations' work. The idea that the League would do some special work in health for the Far East presented itself to us quite early; we owe it, in fact, largely to the Japanese delegate, Dr. Miyajima, and to the example set by Japan, which gave special subsidies and facilities for the purpose. Its actual establishment followed a notable tour by Dr. Norman White to the Far East in 1922–23. At that time, so far as international official agreements about infectious disease were concerned, we were still under the system of intercommunication through diplomatic channels, and Dr. White showed that in this part of the world these agreements for the mutual communication of information meant little in practice. He also showed us that the measures taken in regard to the formidable infectious diseases, notably cholera and plague, were being conducted by the countries and colonies on individualistic and arbitrary lines which were difficult to defend. Whatever might ultimately be done in the way of reforming quarantine procedure in the Far East, one thing seemed immediately practicable and desirable—namely, to arrange that the public health authorities of different countries in that region had a good system of exchanging information about the existence of infection in their ports. The first object of the Far Eastern Bureau therefore was to be the centre through which, with the minimum of formalities, the different countries could pool their information about epidemics. Evidently a great deal of use could be made of wireless messages, and we were satisfied that, whether for wireless or for cables, a code should be feasible which would enable essential facts to be sent through quickly and economically. The Bureau at Singapore was set up with the financial assistance not only of some of the Far Eastern Governments but also, and very substantially, with the aid of the Rockefeller Foundation. It was organised on the advice of and after several conferences with representatives of various Far Eastern medical services, notably those of India, the Dutch East Indies, Japan, and the United States for the Philippines, and it was provided with an Advisory Committee on which the services of Major-General J. D. Graham, late Public Health Commissioner with the Government of India, were invaluable, and over which he presided for several years. On the advice of this Committee also the Bureau has occupied itself with other matters of interest in disease prevention in these regions, notably with coördination of researches into epidemic diseases.

The Bureau was a going concern and had fully justified the intentions of its founders by 1926, when the International Sanitary Conference of Paris, to which I will presently refer, was held, and the whole question of organising the transmission of news regarding infectious diseases at ports was placed on a new basis. The basis then adopted, in fact, was one which the Singapore Bureau had already shown to be practicable. One of the clauses in the 1926 Convention enabled the work of the Bureau to be utilised in the world scheme which has since been put into operation. It has continued and extended the work for which it was founded, and has been of substantial value by providing an outpost from the Geneva office working for a large section of the world which can only have a limited contact with Europe.

I may add here, though it has no connexion with the League of Nations, that there is another international bureau which obtains information about infectious diseases over as wide a region. This is the Pan-American Sanitary Bureau at Washington, whose intelligence system, greatly aided by the United States public health service, covers the two Americas. Like the Singapore Bureau for the Far East, it is now linked up in the common world system of information about epidemics established internationally in 1926.

THE PAN-AMERICAN SANITARY CONFERENCES, BUREAU, AND SANITARY CODE

The creation of the Pan-American Sanitary Conferences and of the Pan-American Sanitary Bureau was authorised by resolutions adopted by the Second International Conference of the American States, which met in Mexico City, Oct. 22nd, 1901–Jan. 22nd, 1902. These Conferences and the Bureau were originally known as "International" instead of "Pan-American," the names having been changed because of the creation of the Office International d'Hygiène publique of Paris.

The Pan-American Sanitary Bureau, which is the executive organ of the Pan-American Sanitary Conferences, was actually formed or organised by the First International Sanitary Conference of American Republics, which met in Washington, Dec. 2nd, 3rd, and 4th, 1902. Each succeeding Sanitary Conference, of which there have been seven, has elected (or re-elected) the officers of the Bureau, consisting of an Honorary Director, the Director, the Vice-Director, a Secretary, and four members. Employees are appointed by the Director.

The status of the Pan-American Sanitary Bureau is definitely fixed by the Pan-American Sanitary Code (Chapter IX., page 13), an international sanitary treaty which revised (and in part reiterated) the Washington Convention of 1905. This code or treaty was signed by the Seventh Pan-American Sanitary Conference at Havana, Cuba, on Nov. 14th, 1924. It has been ratified by 19 American Republics to date, and its provisions are adhered to by the Health Authorities of the other two.

This code was prepared for inter-American practice, and was based in large measure on the International Sanitary Conventions. It has not been superseded by the International Sanitary Convention of 1926, to which

it is regarded as forming a complementary though independent document.

The Bureau, since the Directorship of Surgeon-General Cumming in 1920, has sent technical officers to different American States for special services; it publishes an official bulletin besides providing the intelligence system above referred to.

To avoid a confusion which sometimes arises, it should be added that the Fifth International Conference of American Republics (not a Sanitary Conference) authorised the Director of the Pan-American Sanitary Bureau to call together in Washington, once in five years, the Directing Heads of the Departments of Health of the 21 American Republics. This body is separate and distinct from the Pan-American Sanitary Conferences and on a different basis. Whereas delegates to the Pan-American Sanitary Conferences have plenary powers within certain limitations and can actually make *ad referendum* treaties, the meetings of the Directors of Health have no such powers

Office International d'Hygiène Publique

It will have been realised that when dealing with the League of Nations health work one has been concerned with expert consultations, missions, intelligence work and the like which essentially are dependent on and arranged by the Medical or Health Section of the League Secretariat, and to a considerable extent carried out by its own medical staff. This Health Section has the aid of a Health Committee of the League, appointed by the Council triennially, which advises on principles, receives reports (often after their publication), and forwards them to the Council. Meetings of this Committee are regulated accordingly and are not now held very frequently. At the Office International d'Hygiène publique in Paris the position of its Permanent Committee is quite a different one. The greater part of the work of that Office is based on regular half-yearly sessions of the Committee itself and on the communications which the Government delegates who form the Committee make themselves, or bring from the experts they have consulted in their own countries. The half-yearly sessions of the Paris Committee are busy ones, extending over ten days. The Governments now represented by delegates are as many as 51—in the case of the British Empire including separate delegates for the several Dominions and India and for the British Colonies. The United States and Russia—now the U.S.S.R.—have been represented from the beginning, while such important countries as Japan and Germany, Rumania and Czechoslovakia have become members of the Office within the last ten years, and have strengthened it greatly by bringing in the work of their public health services. The funds of the Paris Office are derived exclusively from the participating Governments, on a system fixed in 1907. The annual total is materially less than that of the annual health budget of the League.

To appreciate what it is that keeps the Paris Committee busy and justifies the attendance of representatives of Government health services from all parts of the world, it is useful to glance back at the circumstances which led to the establishment of the Office International and its Permanent Committee by the International Agreement of Rome, 1907, under which it works. The roots will be found in the great epidemic visitations of plague and cholera in the earlier part of the last century. It is enough to turn to any contemporary accounts of these epidemics in the Levant—read for example the description of plague in Cairo in "Eothen"—and consider how these periodical scourges used to be feared by Mediterranean countries and in Europe generally, to appreciate the way in which every country had come independently to protect itself and its frontiers by the methods then thought to be possible and effective. It was the period of the erection of large lazarets for the detention of persons arriving from suspected places, if indeed they were not arbitrarily detained for days or weeks in harbour on the ships which brought them or were, quite inhumanly, refused admission and sent away to any other country. It was a time also when merchandise was rejected wholesale or destroyed on suspicion of infection, each country acting in these respects on its own lines and in its own lights. The situation in regard to plague and yellow fever had by 1851 become so troublesome and the inconveniences to commerce so great, particularly in the Levant and the Mediterranean basin, that an effort was made by a few countries by means of a conference in Paris in that year to obtain some mutual understandings about the requirements which they would make in the case of shipping in the Mediterranean basin. The countries sending delegates were Austria, Spain, France, Great Britain, Greece, and Sardinia, the British representative being Dr. Sutherland, at that time in the service of the Privy Council. There followed the war years of the Crimea as well as the cholera visitations of 1853 and 1854, increasing the confusion and leading to other conferences—at Paris in 1859, at Constantinople in 1866, and at Vienna in 1874. At these conferences the necessity of a common understanding made some progress, evident again at later conferences in Washington in 1881 and at Rome in 1885. But it was not until 1892 at Venice that a formal "sanitary convention"[1] between countries made its appearance. This was the result of a general desire to control the introduction of *cholera* into the Mediterranean basin from the East by the Suez Canal route. A conference in the following year at Dresden extended the mutual agreements on this subject, while in 1894 another international conference at Paris settled mutual arrangements for the sanitary regulation of the Pilgrimage to Mecca and questions of quarantine in the Persian Gulf. Then in 1896 came the revival of *plague* in Bombay and its rapid extension to various parts of the world. The plague position was taken up by an international conference in Venice in 1897, and following the appearance of plague in Egypt in 1899, the various conventions by this time established were again considered at the sanitary conference at Paris in 1903, which for the first time prepared an international convention which dealt both with cholera and with plague.

An important factor of these conferences and conventions, which essentially were concerned with the protection of Europe from eastern infection, was the fact that a large section of the Levantine ports were controlled by a quasi-international body at Constantinople—namely, the Constantinople Superior Board of Health. The history of this body, which dated from 1838, has been admirably recorded by Dr. Clemow.[2]

CONSTANTINOPLE SUPERIOR BOARD OF HEALTH, 1838–1914

As an administrative body in the old Turkish Empire, dependent in large measure on the foreign consulates at Constantinople, the Superior Board of Health passed

[1] In series, the General "International Sanitary Conventions" have been those of Venice, 1892; Paris, 1903; Paris, 1912; and Paris, 1926. The term "sanitary" dates back to the wider use of the word, as used for example by Simon in "English Sanitary Institutions."

[2] See THE LANCET, 1923, i., 1074, 1120, and 1180, and 1929, i., 93.

through several changes and stormy periods during the 75 years of its existence. It became, however, an important organisation, which maintained a sanitary service (1) at all the chief ports of the Black Sea, in the Straits, and on the coast of Asia Minor; (2) in the Red Sea and for the Mecca Pilgrimage; and (3) on the Turko-Persian frontier and for the Shiah pilgrimage. It had a very large staff, chiefly of Levantine medical officers, and quite large funds; quarantine dues were high in the Near East during last century, and still remain so. Its functions came to an end at the outbreak of the war in 1914, and its formal winding up, the distribution of its property, and the compensation to its personnel were provided for by the Treaty of Lausanne, 1923, and completed in 1927.

The action taken by the Constantinople Board was in large measure determined and regulated by the successive International Sanitary Conventions, and the same was the case with another quasi-international body, the Quarantine Board of Egypt, established about the same period. The latter has continued its existence and since the war has increased its importance in the scheme of protection against the transmission of epidemic diseases from the East.

LE CONSEIL SANITAIRE MARITIME ET QUARANTENAIRE D'EGYPTE

This body, usually known as the Egyptian Quarantine Board, has its headquarters in Alexandria. Financially, it depends, in major part, on the quarantine dues obtained for its services and in part also on the Government of Egypt. Its main functions are the protection of Egypt from invasion by infectious diseases on its frontiers, particularly its seaports, and the protection of the countries in the Mediterranean and beyond by means of the control which it exercises over the transit of vessels arriving from the south and passing through the Suez Canal. In addition, the Quarantine Board has various special health responsibilities in regard to the Mecca pilgrimage and pilgrim ships. The executive work is directed by the President of the Board, an appointment which now for a long period has been held by distinguished and capable administrators: Sir M. Amand Ruffer (1897–1917), Dr. Alexander Granville (1917–1923), the late Major C. F. Thomson (1925–1928), and its present occupant, Major J. Gilmour. The Board itself, on which for many years the British representative was Dr. A. Morrison, consists of representatives of the consular services of certain powers, whose position in the organisation has been determined by events in the history of Egypt which are political rather than medical. Authority formerly given to it by Khedivial decrees has been recognised internationally in successive International Sanitary Conventions, to which the quarantine regulations which it applies are expected to conform. The Convention of 1926 added some new duties to the Board, notably that of making an annual report on the general sanitary control of the Mecca pilgrimage and of forming a "regional bureau" of the Office International d'Hygiène publique in respect of intelligence about epidemics in countries in the Near East.

It is interesting to note, from evidence kindly given to me by Dr. Shahin Pacha, the present Minister of Health in Egypt, how far back this Board can trace its origins. It is a common assumption that the Board is a body originally imposed on the Government of Egypt by the European powers. In fact, however, it was a reverse process, as its beginnings are found as long ago as 1831, when Mahommed Ali called on the European Consular body in Alexandria to organise and apply measures against plague and other infectious diseases comparable to those then in vogue (and of appalling severity) in other ports of the Mediterranean; a request repeated and fortified in 1835, when the whole of the foreign consular body in that city were asked to undertake the direction of the service. As in those days, and long after until the opening of the Suez Canal in 1869, the ships to be quarantined were those arriving on the north from Mediterranean and Levantine ports, it is easy to understand how Alexandria was then, and has remained, the centre of all the Board's activities.

It is interesting to note the importance which in the middle of last century must have been attached in this country to the various conferences and conventions above mentioned, perhaps more from the commercial than from the public health point of view. It is true that we had had formidable invasions of Asiatic cholera in England, as no one is likely to forget in reading the English history of the century down to 1865. It was cholera almost as much as any other factor which determined the first establishment of a Government health service in the form of the Medical Department of the Privy Council. But that department, during the time of Simon's dogmatism and long afterwards, refused to place any serious reliance on attempts to prevent the importation of cholera. They considered periodical invasions of Europe (including England) by pandemic cholera to be inevitable. They desired, indeed, nothing to be done to diminish the lively apprehensions of cholera which were then doing so much good by bringing about the purification of our public water-supplies and by improving our internal measures of sanitation. The local sanitary authorities of our port towns were, of course, expected to protect themselves against the spread of cholera if it arrived, and had powers and duties to undertake inspection of ships within reasonable limits. But the work was essentially local. There was never at that time any question of Government subsidy or anything beyond the minimum of Government action at our ports. It was the time of great development of commerce on free trade principles, and the spirit of that time was all in favour of a British policy of freedom, which in many ways rightly prevailed, but sometimes went much further than other countries were disposed to accept, or even than we should be justified in maintaining now. This earlier policy was, of course, favoured by the limitations of epidemiological knowledge—the part played in infection by human, animal, or insect carriers was not realised, and there was little help from the laboratory.

New knowledge began to tell however, and in fact it was the repeated demonstration of the need for continued studies of the transmission of these pestilential diseases which led to the formation of the Office International d'Hygiène publique in Paris. Only by continuous expert study, and by recommendations agreed between the technical representatives of all the countries concerned, could the principles of the measures which should be taken and the obligations which Governments should jointly assume be fixed with any prospect of practical success. The proposal to establish an International Office for the purpose was made by that distinguished French diplomatist, happily still with us, M. Camille Barrère, as president of the Paris Conference of 1903. It took shape in 1907 in the agreement then made in Rome between 13 countries. The Bureau of the Office was established in Paris at 195, Boulevard St. Germain, and began its work in 1909, when the system of half-yearly meetings of the delegates was begun and has been followed from that beginning.

I will refer a little later to other work done by the Office, but to continue with the so-called pestilential diseases and quarantine questions, one may say here that the establishment of the Office at once justified itself when it became necessary again to revise the International Sanitary Convention in 1912, principally on account of the new situation created by the pushing forward of the Hedjaz railway, and the prospect at that time that the elaborate international system for preventing the recurrence of the

spread of cholera by pilgrims returning from Mecca would have to be radically changed in consequence of this much-favoured Turkish project coming into operation. I note here in parentheses that this line has never been completed in Arabia, and it does not at present constitute a practical factor in the sanitary control of the Pilgrimage.

INTERNATIONAL CONTROL OVER THE ANNUAL PILGRIMAGE TO MECCA

Most of the conferences and conventions and a number of regional agreements have been concerned with the potential centre of distribution of cholera which is created when pilgrims from all parts of the Mohammedan world congregate during the days of the Haj at the several holy places of Arabia, and infection can readily be spread through their fouled and scanty water-supplies and otherwise. The range of the pilgrimage is surprising; it is made from Turkestan and the Caspian, from Northern and Western Africa, as well as from the nearby countries of the Levant. They meet there pilgrims from areas which are or have been endemic centres of cholera; many thousands from India, from Malaya, the Dutch East Indies, and even further afield. Some though not all of the classic cholera pandemics have thus had their origin. Between 1831 and 1912, as many as 27 years have been recorded in which epidemic cholera in connexion with the pilgrimage occurred on a larger or smaller scale. The notable English cholera epidemics of 1865–66 represented an extension from infection at Mecca in the first of these years[1]; the most formidable extension of cholera by the pilgrimage occurred in 1893.

After the interruption of the war years the pilgrimage reverted to its former size, and exceeded 100,000 in 1927. Since then, however, various causes, chiefly economic, have greatly reduced the annual figures, but the reduction may well be temporary. In any event the international arrangements to check the spread of infection must be maintained and made to respond to modern possibilities. The different phases of the elaborate international coöperation for this purpose are excellently set out by Dr. Duguet, Inspector-General of the Quarantine Board of Egypt, in his recent volume, "La Pélerinage de la Mecque" (Riever, Paris, 1932). Here it will suffice to note that the present system comprises: (*a*) provision for inspection of pilgrims before departure, and their vaccination against cholera; (*b*) detailed sanitary regulations applying to all pilgrim ships; (*c*) for ships coming to the Red Sea from the south, inspection at Kamaran, an island with a well-equipped sanitary station, now maintained by agreement (1926) between the Governments of British India and the Dutch East Indies; (*d*) for pilgrims coming by land routes sanitary passports and intercommunication between the authorities concerned, so as to regulate and minimise the repetition of medical measures taken at successive frontiers; (*e*) for pilgrims returning northward, examination at the quarantine station at El Tor, on the Sinai peninsula.

Considering the number of different nations and authorities which are concerned, the present system works surprisingly well and is achieving its main purpose. Since the International Sanitary Convention of 1926 it has come under annual survey by the Paris Office and its standing Pilgrimage Commission.

[1] See also "Papers concerning the European Relations of Asiatic Cholera," by Dr. Netten Radcliffe and others; Report to the Medical Officer of the Privy Council and Local Government Board. New Series. No. V., 1875."

A MENTAL RECOVERY-RATE.—Dr. F. G. Jones, medical superintendent of the North Wales Mental Hospital at Denbigh, in his annual report states that the average recovery-rate among patients for the last 20 years was over 40 per cent., as compared with a mean rate throughout the mental hospitals in England and Wales of about 32 per cent. The death-rate was 4·2 per cent. on the average number resident—the lowest rate on record.

THE THERAPEUTIC ACTION OF PROSTIGMIN*

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IN 1931 Aeschlimann and Reinert[1] published a report on the pharmacological action of some analogues of physostigmine and showed that the dimethylcarbamic ester of 3-oxyphenyl-trimethyl-ammonium-methyl sulphate is as active as physostigmine in stimulating intestinal peristalsis, but that its effect on the heart and circulation is less. This substance is known as Prostigmin and is recommended for therapeutic use as an intestinal stimulant when given by subcutaneous, intramuscular, or intravenous injection, especially in cases of post-operative intestinal atony. Following favourable reports on its therapeutic value by Weigand,[2] Leiner,[3] and Tourneux, Petel, and Gouzi,[4] and a study of its action on the intestinal tract by means of X ray examinations by Kottlors,[5] many accounts of the beneficial effect of this substance in intestinal atony have been published, but so far no reports on its value have appeared in this country.

The action of prostigmin has been observed in 41 patients. It was administered by subcutaneous or intramuscular injection of the solution provided in ampoules by the manufacturers. Thirteen of the patients were selected from among ordinary hospital in-patients not because the action claimed by the manufacturers was desired, but because they presented no special lesion of the digestive tract that would interfere with observations on the action of the drug under approximately normal conditions. In 28 instances patients were selected because the action claimed was desired, and in 16 of these post-operative intestinal distension was present.

EFFECT UPON HEART-RATE AND BLOOD PRESSURE

In view of the close similarity in chemical constitution of prostigmin and physostigmine, observations on heart-rate and blood pressure were made for some minutes before and for 30 to 60 minutes following the subcutaneous injection of prostigmin in 10 patients. The doses used were:—

1 c.cm. = 0·0005 g.* in 2 cases.
2 ,, = 0·001 g. ,, 7 ,,
3 ,, = 0·0015 g. ,, 1 case.

and in one a second injection of 4 c.cm. = 0·002 g.

* This is the dose recommended.

In none of them was any significant change in heart-rate or blood pressure observed with doses of 1, 2, or 3 c.cm., nor was any discomfort produced other

* A Report to the Therapeutic Trials Committee of the Medical Research Council. The prostigmin used in these tests was manufactured by F. Hoffmann-La Roche and Co., A.-G., Basle, and submitted to the Committee by the Hoffmann-La Roche Chemical Works, Ltd., London.

than that referable to an action on the digestive tract. As a rule, both heart-rate and blood pressure showed a slight but steady reduction during the periods of observation, but following 4 c.cm (0·002 g.), which was given on one occasion only, an average pulse-rate of 116 before injection was reduced to 84 half an hour after the injection, a greater fall than can easily be accounted for as the result of the loss of nervousness and anticipation. One patient showed slight sweating, and two others some twitching of the muscles of the limbs and trunk, but in none of these instances was discomfort produced, and it was not possible to say that these phenomena were the result of the prostigmin. Slight transient local discomfort was produced by the subcutaneous injection of the solution.

EFFECTS REFERABLE TO ACTION ON DIGESTIVE TRACT

In all of the 13 patients, without any interference with intestinal action, a sensation of excessive activity and movement was experienced in the abdomen, variously described as "rumbling," "wind," "gurgling," "griping pains." This usually commenced in 10 to 20 minutes after the injection and lasted for a varying period of time from one or two minutes up to an hour. When well marked it increased for some minutes and was at a maximum 30 to 40 minutes after the injection and then gradually lessened in intensity. Most of the patients passed some wind by the rectum and two asked for the bed-pan, one at 15 minutes and one at 30 minutes after the injection, but did not defæcate and the desire to do so rapidly passed off. In three instances nausea was experienced following 2 c.cm. (0·001 g.), and vomiting occurred following the dose of 4 c.cm. (0·002 g.).

Three patients selected because of difficulty with the action of the bowels, but not post-operative distension, require more detailed consideration.

(*a*) A man, aged 20, with acute rheumatism and pericarditis, had had no action of the bowels for two days. He did not experience any sensations following the injection of 2 c.cm. (0·001 g.). A soap-and-water enema was given 3½ hours after the injection, and he had a large and satisfactory motion.

(*b*) A man, aged 65, with cerebral thrombosis and a right-sided hemiplegia, had much difficulty in opening his bowels. For two weeks he had no satisfactory result in spite of repeated enemata. Twenty-five minutes after the injection of 2 c.cm. (0·001 g.) he asked for the bed-pan and continued to use it for three-quarters of an hour, a very good evacuation resulting, but accompanied by severe griping pains, and he was much exhausted.

(*c*) A man, aged 28, suffering from incontinence of fæces following a crush fracture of the spine, had had no movement of the bowels for 21 hours. Thirty-five minutes after the injection of 2 c.cm. (0·001 g.) and following much rumbling in the abdomen he emptied his bowels in the bed. A further injection of 4 c.cm. (0·002 g.) was given a few days later; 28 minutes afterwards he had an involuntary evacuation of the bowels and a little later he vomited.

In an endeavour to determine more clearly the action of the drug causing the sensations of increased movement of the intestines recorded above but seldom resulting in an emptying of the bowels, (*a*) two patients with colostomy were observed, and (*b*) four patients were examined by X rays following barium meals.

(*a*) (1) Colostomy was performed on a man, aged 56, for inoperable carcinoma of the rectum, the opening being at the junction of the descending and sigmoid portions of the colon, and 11 days later he was given an injection of 2 c.cm. (0·001 g.). The sensations of abdominal unrest commenced in six minutes and increased for three-quarters of an hour, after which they gradually subsided. At times they amounted to pain. Small quantities of wind were passed at frequent intervals by the colostomy opening but no liquid or solid contents, and the exposed portion of the colon was seen to contract and relax from time to time, these movements coinciding with the passage of wind.

(2) A woman, aged 39, was suffering from acute obstruction due to megacolon and volvulus and a resection of the sigmoid colon was performed, with the formation of an artificial anus at the lower end of the descending colon. Fifteen days later she was given an injection of 2 c.cm. (0·001 g.). The sensations of abdominal activity commenced 13 minutes later and increased somewhat in intensity for a quarter of an hour and were still noticeable at the end of three-quarters of an hour. During this time small quantities of wind only were passed by the colostomy opening. The abdominal wall was very thin and patterns were observed as of contractions and distensions in the ascending and transverse colon, and the exposed portion of the colon was seen to contract and relax from time to time. At one time, about 30 minutes after the injection, a movement was seen through the abdominal wall as if a wave of contraction passed along the colon from the cæcum to the splenic flexure.

These observations were made two hours before the patients were due to have the daily washing-out of their colons, and when this was done fæcal material was returned as usual in both cases. It is of interest, therefore, that in spite of the manifest activity of movement in the colon wind only was passed.

(*b*) Three patients were given a barium meal six hours previously so that the colon was filled, and a second meal immediately before the injection of prostigmin; a fourth had the first meal only, as the stomach still contained enough at the end of six hours to enable the condition of the stomach to be observed. The patients were examined from time to time with the fluoroscopic screen during at least an hour following the injection. In two of the patients who received 1 c.cm. (0·0005 g.) no movements that could be regarded as abnormal were seen, although both had sensations of abdominal activity to a slight extent. The other two received 2 c.cm. (0·001 g.). In one of them at the end of three-quarters of an hour alternate contractions and relaxations were seen in the descending colon and continued for a quarter of an hour, a type of movement that is not usually observed in the colon during X ray examinations in subjects with normal intestinal tracts. The second patient showed similar movements in the transverse and descending colon for 10 minutes at the end of three-quarters of an hour after the injection, and one short wave of contraction was observed to pass along the transverse and descending colon. This type of movement also is not commonly seen in normal intestinal tracts.

In all four of these subjects active movements of the stomach and small intestine, consisting of contractions and relaxations and peristaltic waves, were observed, but it is not possible to say that they were abnormal.

POST-OPERATIVE CASES WITH DISTENSION

Prostigmin was given in 16 cases of abdominal distension following surgical operation.

CASE 1.—A man, aged 44, was operated on for carcinoma of the stomach and a partial gastrectomy performed. Three days after the operation signs of general peritonitis appeared with abdominal distension. On the following day the distension was increasing and no wind was passed. Fifteen minutes after the injection of 1 c.cm. (0·0005 g.) he asked for the bed-pan but without result, a turpentine enema was given but no wind or fæces were passed. A further injection of 1 c.cm. was given four hours later and a turpentine enema 20 minutes after it, and a little wind was passed. The patient died next day, and at autopsy general peritonitis was found.

CASE 2.—A woman, aged 74, was admitted suffering from acute intestinal obstruction, due to a carcinoma of the transverse colon. For this a cæcostomy was performed. The cæcostomy did not act well and the small intestine

became greatly distended. Inserting a large tube into the cæcostomy produced little result. An injection of 1 c.cm. (0·0005 g.) produced within ten minutes a remarkable effect—very active movements were induced and several bowls were filled with fæcal content from the cæcostomy opening in the course of a few minutes. In this case a very effective small intestine propulsion was induced.

CASE 3.—A man aged 56. Investigation showed a scirrhous carcinoma of the stomach with secondary duodenal ileus from infiltration of the root of the mesentery. A duodeno-jejunostomy was performed. Three days later he was greatly trouble with flatulence which did not yield to flatus enemata. The injection of 1 c.cm. (0·0005 g.) produced almost immediately movements of the small intestine. He expressed the feeling that a movement commenced as high up as the stomach and passed progressively down the bowel. A small flatus enema now gave a very satisfactory result. The injection was repeated on a second occasion and the result was equally good.

CASE 4.—A woman, aged 50, suffered from carcinoma of the rectum. A preliminary colostomy was performed through the left rectus muscle. Owing to œdema and tight gripping of the muscle the colostomy did not act well. Even when a rubber tube was inserted little came away. The injection of 1 c.cm. (0·0005 g.) produced an immediate activity, and a further insertion of the tube resulted in an evacuation with relief. On a second occasion the result was similar.

CASE 5.—A man, aged 42, suffered from a gangrenous and perforated appendix with diffuse peritonitis. He developed abdominal distension with obstructive symptoms on the fifth day after operation. On three occasions he was given 1 c.cm. (0·0005 g.) followed by enemata, without satisfactory result. Jejunostomy was required, but a fatal result followed. In this case there was an organic obstruction from adhesions, and this explained the failure of prostigmin to produce an evacuation.

CASE 6.—A man, aged 40, had a gastro-jejunostomy performed for duodenal ulcer. He complained of flatulent distension on the second day. This was not relieved by a flatus enema. The injection of 1 c.cm. (0·0005 g.) produced activity, and an enema given ten minutes later produced a large and satisfactory passage of flatus. The patient asked to have the injection repeated on the following day, when the result was equally satisfactory.

CASE 7.—A man aged 21. Operation for chronic appendicitis with adhesions. Marked gaseous distension occurred on 3rd, 4th, and 5th days after operation. On two occasions 1 c.cm. (0·0005 g.) of prostigmin, followed by a small enema, produced the free passage of flatus. Later a third dose produced little result, and 1 c.cm. of pituitrin given two hours later was much more effective. On the following day prostigmin again produced little result, but pituitrin, given some hours later, was again effective. In this case prostigmin appeared to be less effective than pituitrin, but it is possible that the combination of the two drugs helped to produce the ultimately satisfactory result.

CASE 8.—A woman aged 66. Operated upon for chronic appendicitis with adhesions round the lower end of the ileum. The appendix was removed and the adhesions divided. On the second day after operation she became greatly distended and unable to pass flatus. An injection of 1 c.cm. (0·0005 g.) produced, within six minutes, considerable rumbling of gas with immediate relief, and an enema given some minutes later produced an excellent result. She was quite satisfied that after the injection and before the enema was given she got pronounced relief.

CASE 9.—A man, aged 32, was operated on for chronic appendicitis. Numerous adhesions had to be divided and considerable handling of the small intestine took place. On the evening of the second day following operation he complained bitterly of flatulent distension. A flatus enema gave slight relief, but his discomfort quickly returned. He was given 2 c.cm. (0·001 g.) of prostigmin. Twelve minutes later he had griping pains and much rumbling, but no passage of flatus. This continued for 15 minutes. He was then given a flatus enema with a very satisfactory result.

CASE 10.—A man aged 26. Marked abdominal distension and vomiting occurring three days after an operation for the relief of acute obstruction due to adhesions. 1 c.cm. (0·0005 g.), by intramuscular injection, followed by a 10 per cent. glycerin enema produced a satisfactory evacuation of flatus and fæces. On the following day some distension which occurred was again relieved by repetition of the treatment.

CASE 11.—A girl aged 7. Abdominal distension and vomiting occurred two days after operation for appendix abscess. An ordinary enema gave no relief. The injection of 0·5 c.cm. (0·00025 g.) intramuscularly, followed by a glycerin enema, produced no beneficial result. Four hours later 1 c.cm. (0·0005 g.) was given and followed by a glycerin enema. Following this a free action of the bowels took place and the patient gave no cause for further anxiety.

CASE 12.—A man aged 22. Marked abdominal distension and vomiting occurring three days after operation for gangrenous appendicitis with peritonitis. Intramuscular injection of 1 c.cm. (0·0005 g.), followed by a glycerin enema, failed to produce any beneficial result. This was repeated in four hours and again failed to produce any change in the condition, except some increase in the abdominal discomfort. A satisfactory evacuation resulted some hours later, and after the administration of acetylcholine.

CASE 13.—A youth aged 18. Acute abdominal discomfort with distension occurring two days after operation for appendix abscess with local peritonitis. Intramuscular injection of 1 c.cm. (0·0005 g.), followed by a glycerin enema, produced a satisfactory result in that the bowels acted well and the discomfort disappeared.

CASE 14.—A man aged 20. Mild distension and colicky abdominal pain on the day following operation for acute appendicitis. A good action of the bowels with disappearance of the symptoms followed the intramuscular injection of 1 c.cm. (0·0005 g.) and a glycerin enema.

CASE 15.—A man aged 21. Severe intestinal colic on the day following an operation for acute appendicitis with local peritonitis. Intramuscular injection of 1 c.cm. (0·0005 g.), followed by a glycerin enema, failed to give any relief. This was repeated four hours later and was followed by the passage of flatus and fæces with complete relief of the symptoms.

CASE 16.—A woman aged 34. Marked abdominal distension with vomiting and colicky abdominal pain three days after operation for acute appendicitis with peritonitis. Intramuscular injection of 1 c.cm. (0·0005 g.), followed by a glycerin enema, resulted in the passage of flatus and fæces. Owing to a recurrence of the symptoms this was repeated on the following day with a satisfactory result.

POST-OPERATIVE CASES WITHOUT DISTENSION

In nine cases prostigmin was given after operation not associated with distension. An injection (intramuscular) of 1 c.cm. (0·0005 g.), followed by a glycerin enema, was given to each of four men between the ages of 18 and 22 years, who were suffering from mild abdominal discomfort on the day following operation for acute appendicitis. In two a satisfactory evacuation of the bowels took place with relief from the discomfort. In the other two no action of the bowels was obtained, and the discomfort was slightly increased. A normal recovery occurred in each instance.

An injection (intramuscular) of 1 c.cm. (0·0005 g.), followed by a glycerin enema, was given to each of five men, between the ages of 18 and 43 years, on the day following operation for inguinal hernia. In three a satisfactory evacuation of the bowels occurred, but in the other two no action resulted until after an aperient was given on the following day.

Conclusions

1. The injection, subcutaneous or intramuscular, of prostigmin produces in normal subjects active movements (contractions and relaxations) in the colon, but there is no evidence that these movements are such as to produce the forward passage of the contents of the colon. Considerable variation was seen in the intensity of the response of different individuals.

2. Prostigmin appears to be free from side-actions on the heart-rate and blood pressure when given in doses at least double the recommended dose.

3. In cases of gaseous distension of the intestine, prostigmin is of value. In from 10 to 20 minutes following its injection abdominal pains and rumblings occur, and these go on for almost 30 minutes. It is necessary to give an enema to get a satisfactory passage of flatus.

4. It is suggested that prostigmin, followed by pituitrin, and then an enema, may be an effective measure for stimulating peristalsis in post-operative distension.

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ACUTE PERFORATION OF PEPTIC ULCERS

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THIS survey presents some features of 75 cases of perforated gastric and duodenal ulcers operated on by us—with special reference to the incidence, the diagnosis, and the immediate complications. There were 63 males and 12 females. The distribution is shown in Table I.

TABLE I

—	—	Duodenal.	Gastric.		
			Pyloric.	Mid-gastric.	High gastric.
Males ..	63	48	6	5	4
Females ..	12	4	1	6	1

Although males outnumber females by more than five to one, the proportion of females is rather higher than usual. There is an overwhelming preponderance of duodenal perforations in the male, while in the female the perforation of gastric ulcer has been twice as frequent as that of duodenal ulcer.

In the gastric perforations the ulcer was found on the anterior surface of the stomach—at or close to the lesser curve—in all but one, where the perforation occurred into the lesser sac from an ulcer high up on the posterior aspect of the stomach near the cardiac orifice. In all the duodenal cases the perforation was found on the anterior surface of the first part.

AGE AND PREVIOUS HISTORY

Half of the perforations in this series occurred in the fifth and sixth decades, the fifth decade being found the commonest for both gastric and duodenal ulcers in both sexes. The oldest patient was a woman of 74, and the youngest a man of 19. Twelve patients had no previous symptoms, while in 11 indigestion had been present for a period under four weeks. In the remainder there was a history of digestive disturbance ranging from a few months to over twenty years. The proportion of patients with no previous symptoms is higher than that usually recorded. It is worthy of note that nearly all these cases were duodenal perforations, and the importance of bearing in mind this frequency is evident from the diagnostic point of view. Three patients gave a history of hæmatemesis twelve, nine, and four months respectively prior to perforation, while one patient returned twelve months later with a second perforation at the site of the original ulcer—having been free from symptoms in the interval. In five patients the onset of perforation was heralded by an exacerbation of digestive symptoms for several days before. This feature has been stressed by many observers, and especially by Moynihan.[1] It is strange, however, that this is not a more common event, for in nearly all cases the perforation is due to a progressive necrosis in the floor of a chronic ulcer. In all our cases perforation occurred at the site of a chronic ulcer, evidence of chronicity being found even when there was complete absence of previous digestive disturbance.

A search for any immediate cause of perforation led to no very definite conclusion. Some occurred during active work, others while the patient slept. The majority of our perforations occurred an hour or two after food. It is probable that some increase in gastric tension is the commonest precipitating factor; 11 of our cases followed a festive Christmas meal. In one the perforation of a duodenal ulcer appeared to be precipitated by a copious hæmatemesis—several bouts of vomiting being followed by the onset of acute pain and all the signs and symptoms of perforation.

TYPES OF PERFORATION

These were found to fall into three groups.

Group 1.—In the great majority the opening was of moderate size, round and punched out, about an eighth of an inch in diameter, through which duodenal or gastric contents had escaped in varying quantity. It is common experience that in duodenal perforations there is but little escape of gastric contents—probably from spasmodic closure of the pylorus.

Group 2.—The perforation was larger. The stomach was the common site of these bigger perforations, and the gross soiling of the peritoneum carried a correspondingly grave prognosis.

Group 3.—The opening was minute and partially or completely covered with lymph. Six cases fell into this group. They appear to be comparatively frequent, and usually occur when the stomach is empty and the small hole is rapidly covered by protective lymph. Moynihan[2] has long ago drawn attention to the importance of this group and the difficulties attaching to the diagnosis. The initial signs and symptoms of perforation rapidly abate and with suitable treatment complete healing may

[1] Practitioner, 1928, cxx., 138.
[2] Ann. Surg., 1907, xlv., 223.

occur without operation. This occurred in one of our cases. In another a localised epigastric abscess developed. In a third case the barrier formed by the protective layer of lymph gave way after a period of 48 hours—with a return of the typical features—necessitating the usual operative measures.

Although perforation occurred most frequently after a meal, it was uncommon to find gross soiling of the peritoneum by food except in the gastric perforations. Multiple areas of fat necrosis in the omentum and subperitoneal fatty tissue were found in one case of duodenal ulcer—the perforation being near the junction of the first and second parts.

An attempt was made to estimate the acidity and peptic activity of the gastric juice obtained by means of a fine catheter inserted through the opening. The frequency of bile or food contamination, however, precluded any definite results being obtained.

DIAGNOSIS

The majority presented the characteristic features—sudden prostration by agonising abdominal pain, followed by tense immobility and a board-like tender abdomen. It is not proposed to elaborate all the details of such a well-known picture, but certain features are worthy of comment. A few patients presented a degree of activity that was surprising; one patient a hardy gipsy woman, with a perforation of one hour's duration, was able to walk a distance of one mile to hospital. Vomiting at the onset was present in about a third of our cases, but was not of any severity, while the pulse-rate was but little raised in the early stages except in elderly patients. Only five cases presented shoulder pain as a symptom. Absence of liver dullness was noted in 11 cases, two of these being of less than six hours' duration.

Difficulties in diagnosis do not usually arise in the majority of cases seen reasonably early, except in those falling into the third group. In these the initial general signs and symptoms quickly abate and become localised, simulating acute cholecystitis, acute appendicitis, or acute affections of the chest. The temperature is subnormal at the onset in nearly all perforations, thus affording a useful differential feature. Auscultation of the abdomen has been found of great value in the obscure case, for as a rule there was complete absence of peristaltic sounds, while in acute chest conditions they were never absent.

The demonstration of pneumoperitoneum is a diagnostic aid of very great value in a doubtful case. We have resorted to this method of diagnosis in one of our series where a small perforation of the duodenum covered with lymph was associated with chest signs which clouded the diagnostic picture. The skiagram—taken with a portable apparatus while the patient was in the Fowler position—revealed the typical sickle-shaped areas of free gas under the diaphragm, making the diagnosis obvious. The procedure can be carried out with little or no discomfort to the patient.

TREATMENT AND FATALITY

Simple closure, with reinforcement of the suture line by omentum, was performed in all cases with the exception of one where gastro-enterostomy was added. This was a case in which a perforation of the duodenum had recurred at the site of the original ulcer twelve months later. A right paramedian incision under general anæsthesia was employed in most cases, but where the general state of the patient was poor a median incision allowed a more rapid opening and closure of the abdomen. Spinal and local anæsthesia were found eminently satisfactory in suitable cases. Where the stomach contained food it was emptied by an œsophageal tube passed by the mouth during the operation. Strict abdominal toilet was employed only in gastric perforations where particles of food were found in the peritoneal cavity. Pelvic drainage was employed if the perforation had been in existence over twelve hours. The fatality was as follows:—

TABLE II

	Patients.	Deaths.	Fatality-rate per cent.
Duodenal ulcer ..	52	9	17
Gastric ulcer	23	9	39
Total	75	18	24

The higher fatality with perforated gastric ulcers is the experience of most surgeons. It is due, in all probability, to the greater soiling of the abdomen, especially if the opening is a large one, with a more rapidly oncoming peritonitis than that met with in perforations of the duodenum.

The fatal cases were found to fall into the following groups:—

1. Those dying within 48 hours of operation (5 cases). In these patients there was no improvement after the operation. They came to hospital late, with the general condition severely undermined; in one case advanced carcinoma of the cervix coexisted. In this group death was due to peritonitis.

2. Those dying between the third and the ninth day after operation (8 cases); following peritonitis (3); peritonitis and delirium tremens (1); broncho-pneumonia (2); broncho-pneumonia and parotitis (1); pulmonary embolism (1). As in the preceding group the main determining factors leading to a fatal issue were the time elapsing before treatment was instituted, the age of the patient, and the site of the perforation. The fatality rose to 100 per cent. in acute perforations of over 24 hours' duration. The death-rate rose with each decade, and the tendency of the elderly to succumb to pulmonary complications was illustrated by three deaths from broncho-pneumonia. Parotitis is now a rare complication, but may occur even when all precautions are taken.

3. Deaths occurring between 10 and 28 days (5 cases); following subphrenic abscess (1); residual pelvic abscess with intestinal obstruction (1); pneumonia (1); and hæmatemesis from an unsuspected ulcer (2).

Our cases illustrated that subphrenic and pelvic abscesses are the result of delay. Intestinal obstruction has been met with on two occasions and occurred around the site of the drainage-tube necessitated by gross peritoneal soiling.

The occurrence of hæmorrhage from a second ulcer led to a fatal termination in two cases, on the tenth and twenty-fourth post-operative day respectively. In each case the perforation had occurred in the duodenum, and the bleeding was shown at autopsy to have its origin in an unsuspected gastric ulcer—in one case eroding the splenic artery. The possibility of this occurrence indicates the desirability of searching for other ulcers at the time of operation and stresses the need for prolonged and thorough after-treatment.

It is often stated that bleeding ulcers do not perforate, and that perforating ulcers do not bleed, but we have seen this association in two cases. In one the perforation followed immediately upon a hæmatemesis, and in another profuse bleeding occurred from an ulcer high upon the lesser curve which had been sutured ten days before.

DIABETES MELLITUS IN CHILDREN

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This paper is based on observations on 18 patients with diabetes mellitus who attended Addenbrooke's Hospital between 1925 and 1933, and who at the time of onset were less than fifteen years old. In 5 the disease began before 1927, and until that year their treatment with insulin was intermittent and insufficient. All the 16 who survive have been under regular supervision from 1927 until the present time. The cases are unselected, and comprise all the diabetic children attending between 1927 and 1933.

Three of these children live in Cambridge and the remainder in the country or in villages and small towns between ten and fifty miles distant. As a rule it is impossible for them to attend hospital more often than once every two months for supervision. Many of them also live at considerable distances from their doctors, and in the event of complications developing treatment is often delayed. They are mostly drawn from an illiterate class, and although they themselves are usually of the more intelligent, it is difficult with the present organisation to teach them more than a few essential facts about the management of their disease.

CASE RECORDS

The following is a brief outline of the cases as reviewed up to October 1933. Under the heading of severity are given the results of a sugar-tolerance test with the fasting blood-sugar (per cent.) and the blood-sugar at half-hourly intervals after ingestion of a stated quantity of glucose. F.B.S. = fasting blood-sugar. C. = carbohydrate. P. = protein. F. = fat. (Hagedorn-Jensen method throughout.)

Case 1.—A girl now aged 15. Chicken-pox at 4. When she was 7 years old (August 1925) her mother noticed that she was losing weight, was thirsty and passed much urine. Next month she was admitted to hospital, when the findings were: urine sugar, 5 per cent.; acetone and diacetic acid in large amounts; blood-sugar 0·24 per cent.; weight, 2 st. 12 lb. *Severity of disease* (November 1931). Sugar tolerance: F.B.S. (fasting blood-sugar) 0·28; (50 g. glucose) 0·36, 0·42, 0·46, 0·38; specimens of urine passed after one hour and three hours contained 22·8 g. glucose in all. *Present treatment.* Diet: total calories, 1884; calories per kg., 46; C. (carbohydrate) 150, P. (protein) 60, F. (fat) 110. Insulin: 25 units bis die. *Present condition.* Usual resting blood-sugar: 0·1. Usual urine findings: sugar-free. Weight: 6 st. 6 lb. Height: 5 ft. 1 in. Sexual development normal; no menstruation. Activity normal.

Case 2.—Male aged 21. In June 1925 he had mumps. There was no abdominal pain but it was followed by epigastric discomfort. A few weeks later thirst and polyuria developed, and in September sugar was discovered in the urine. He was then 12½ years old. *Severity and course of illness.* On admission to hospital (September 1925) large amounts of sugar and acetone bodies were present in the urine. Resting blood-sugar 0·28. Passed 113 g. of glucose on a restricted carbohydrate diet in 24 hours. Two days later was on the verge of coma. Weight: 4 st. 13 lb. For the first two years he was treated with a very low diet and insulin for a few weeks. During the next 18 months he had insulin, but not enough. The disease was then controlled and sufficient insulin given. Sugar-tolerance curve (January 1932): F.B.S., 0·28; (50 g. glucose) 0·40, 0·44, 0·43, 0·39, 0·39; urine specimens at the end of one hour and three hours contained 41·4 g. glucose. *Present treatment.* Diet: total calories, 1668; calories per kg., 25; C. 110, P. 70, F. 100. Insulin: 40 units b.d. *Present condition.* Usual resting blood-sugar: 0·10–0·18. Usual urine findings: sugar-free about every other visit. Weight: 11 st. 10 lb. Height: 5 ft. 11½ in. Sexual development normal. Activity normal; looks after a chicken farm and does a great deal of manual work.

Case 3.—Boy aged 14½. Always delicate and inclined to lose weight; mumps as a child. One brother died of diabetes at 25. In March 1932 he developed sudden thirst and polyuria and lost a lot of weight. After three days he was put on a small dose of insulin, about 100 units a week, given at irregular intervals. He remained weak, often too weak to get out of bed. *Severity.* Attended hospital for the first time in March 1933. Urine sp. gr., 1040; sugar and acetone bodies in large amounts; resting blood-sugar 0·27. Hypoglycæmic coma: one attack, with convulsions in August 1933; (had not taken breakfast). *Present treatment.* Diet: total calories, 1668; calories per kg., 41; C. 120, P. 60, F. 100. Insulin: 24 units b.d. *Present condition.* Resting blood-sugar, very variable and often high. Usually glycosuria. Weight: 6 st. 4 lb. Height: 4 ft. 10 in. Sexual development: penis infantile in type but just beginning to develop; only a few pubic hairs. Activity normal.

Case 4.—Boy aged 13½. Whooping-cough in 1921: vaccinated in 1925, after which the arm did not heal well and was bad for eight weeks. In December 1926 when he was 7 years old, he had "influenza," followed by mumps; this was a mild attack but there was some abdominal pain which lasted for over a week. Three weeks later he suddenly developed thirst, hunger, and polyuria and began to waste. (Weight in December 1926 4 st. 7 lb.) *Severity and course of illness.* On admission to hospital in March 1927 the urine (sp. gr. 1038) contained large amounts of sugar and acetone bodies. Resting blood-sugar 0·17; weight 3 st. 4 lb. The condition was only partially controlled by a very low diet and occasional insulin until March 1930, when weight was 4 st. 1½ lb. Adequate diet and sufficient insulin were then begun. Diabetic coma: March 1930 (insulin stopped); and August 1930 (empyema of maxillary antrum), although insulin 20 b.d. had been continued. Sugar-tolerance test (August 1931): F.B.S., 0·40; (50 g. glucose) 0·54, 0·56, 0·58, 0·56, 0·48. Specimens of urine at the end of one and three hours contained 36 g. glucose in all. *Present treatment.* Diet: total calories, 1550; calories per kg. 38; C. 80, P. 60, F. 105. Insulin: 25 units b.d. *Present condition.* Usual resting blood-sugar: 0·1; occasional relapses to 0·2. Usual urine findings: trace of sugar; occasional severe relapses. Weight: 6 st. 6 lb. Height: 4 ft. 8 in. Sexual development: penis still infantile; no pubic hair. Activity: Plays all games including football and swimming; top of his class and sings in college choir.

Case 5.—Girl aged 16¾. One brother died four years ago, aged 18. He was perfectly well until a few weeks before death; he then seemed out of sorts, and a few days of polyuria and thirst preceded coma. He was never admitted to hospital and received no insulin. The patient herself had a bad cold in July 1931 when she was 14¾ years old, and in the following month she developed wasting, lassitude and loss of weight, followed by thirst and polyuria of sudden onset. *Severity.* On admission to hospital in September 1931 the urine (sp. gr. 1040) contained sugar and acetone bodies in large amounts. Resting blood-sugar, 0·3. Weight 6 st. Mild attack of hypoglycæmic coma in November 1932. *Present treatment.* Diet: total calories, 1380; calories per kg., 26; C. 100, P. 55, F. 80. Insulin: 30 units b.d. *Present condition.* Usual resting blood-sugar: 0·1–0·3. Sugar always present in urine. Weight: 8 st. 6 lb. Height: 5 ft. 2 in. Sexual development: normal. The periods began in January 1931 and stopped at the onset of the diabetes; they were irregular in 1932 but regular in 1933. Activity normal.

Case 6.—Girl aged 17. Five years ago (October 1928); she suddenly complained of thirst and polyuria and began to lose weight. *Severity and course of illness.* In November 1928 the urine (sp. gr. 1038) contained much sugar and acetone, and the weight was 4 st. 12 lb. Septic

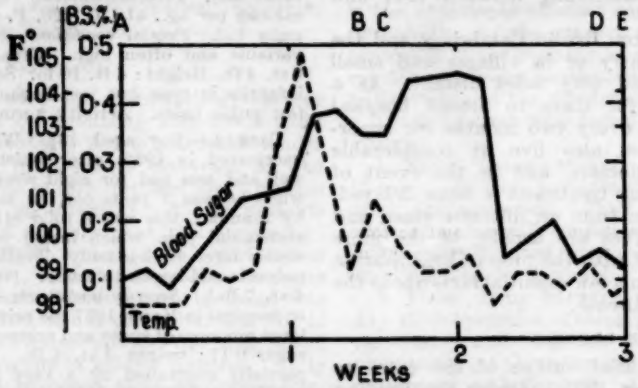
tonsils enucleated in November 1931, after diabetic coma (insulin stopped during infection). Sugar tolerance (April 1932): F.B.S., 0·4; (50 g. glucose) 0·48, 0·51, 0·51, 0·48; specimens passed after one and two hours contained 21 g. glucose. *Present treatment.* Diet: total calories, 1628; calories per kg., 28; C. 105, P. 54, F. 105. Insulin: 40 units b.d. *Present condition.* Usual resting blood-sugar: 0·15–0·25. Sugar present in urine as a rule. Weight: 9 st. 2 lb. Height: 5 ft. 1 in. Sexual development: normal, but no menstruation. Activity normal.

CASE 7.—Boy aged 10½. On Feb. 8th, 1933, he complained of thirst for a few weeks; he then scalded his foot and four days later was admitted to hospital on the verge of coma. *Severity.* On admission the blood-sugar was 0·38 and the urine contained much sugar and acetone bodies. Sugar tolerance: F.B.S., 0·23; (25 g. glucose) 0·22, 0·29, 0·33, 0·35, 0·23; urine passed one and three hours after glucose contained 16 g. glucose in all. *Present treatment.* Diet: total calories, 1810; calories per kg., 60; C. 200, P. 60, F. 80. Insulin: 10 units b.d. *Present condition.* Usual resting blood-sugar: 0·1. Urine usually contains a trace of sugar; relapses. Weight: 4 st. 11 lb. Height: 4 ft. 6½ in. Activity normal.

CASE 8.—Boy aged 9½. When he was 6 years old, in the summer of 1930, he developed thirst and polyuria, lost weight and became progressively more ill. In February 1931 he had an attack of "influenza" and in March sugar was found in urine. *Severity and course of illness.* On admission to hospital in March 1931 the urine contained sugar and acetone bodies; resting blood-sugar, 0·15. Sugar-tolerance curve: F.B.S., 0·15; (50 g. glucose) 0·18, 0·26, 0·31, 0·30, 0·25. Weight: 2 st. 9 lb. May 1931: hypoglycæmic coma; unconscious for three hours; sickness and convulsions. November 1931: convulsions and coma. *Present treatment.* Diet: total calories, 2060; calories per kg., 82; C. 160, P. 72, F. 120. Insulin: 11 units b.d. *Present condition.* Usual resting blood-sugar: 0·08–0·14. Urine usually sugar-free. Weight: 4 st. Height: 4 ft. 2 in. Activity normal.

CASE 9.—Girl aged 11. In January 1930, at age of 7½, she began to lose weight and did not seem fit. A few days later slight frequency developed and sugar was found in the urine. Ten units of insulin daily were given by her private doctor till she was admitted to hospital in the following April. *Severity and course of illness.* On admission the resting blood-sugar was 0·25 and the urine contained a large amount of sugar and acetone. Sugar tolerance (September 1931): F.B.S., 0·2; (50 g. glucose) 0·36, 0·47, 0·50, 0·51. Weight: 3 st. 3½ lb. In November 1931 she had hypoglycæmic coma; unconscious for four hours; no warning. In 1932 on two occasions she was unconscious for about two hours. A peculiar scream preceded these attacks. No treatment was given. *Present treatment.* Diet: total calories, 1640; calories per kg., 50; C. 102, P. 60, F. 105. Insulin: 20 units b.d. *Present condition.* Usual resting blood-sugar: 0·04–0·12. Usually sugar-free. Weight: 5 st. 3 lb. Height: 4 ft. 4½ in. Activity normal.

CASE 10.—Girl aged 18. Whooping-cough and chicken-pox as an infant. One brother has diabetes and congenital heart disease (Case 11). When she was 11 years old (July 1926) she was noticed to be blinking her eyes in a curious way. Before this her eyesight had been good and she had won a prize at school. Thirst and polyuria came on a few weeks later, and sugar was found in urine. *Severity.* (January 1927). Blood-sugar, 0·2. Passing 35 g. of sugar on diet of 100 g. carbohydrate. Weight: 3 st. 11 lb. Sugar tolerance (August 1931): F.B.S., 0·27; (50 g. glucose) 0·36, 0·41, 0·44, 0·41, 0·36, 0·3; specimens at end of one, two, and three hours contained 33·8 g. glucose. *Treatment and course of illness.* January 1927: C. 22, P. 86, F. 157. Insulin: 8 units b.d. August 1929: C. 36, P. 86, F. 157; 10 units b.d. increasing to 14. August 1931: C. 85, P. 60, F. 120; 22 and 25 units b.d. April 1932: C. 130, P. 60, F. 100; 22 and 25 units b.d. *Vision* (1927): right eye 6/60, left 24/60; (1933) right eye 6/60, left 6/60. Cataract. *Present treatment.* Diet: total calories, 1709; calories per kg., 40; C. 130, P. 60, F. 100. Insulin: 23 and 25 b.d. *Present condition.* Usual resting blood-sugar: 0·05–0·13. Usually sugar-free. Weight: 6 st. 11 lb. Height: 5 ft. 2½ in. Sexual development normal; no menstruation. Cataracts have progressed slowly since onset and are now being treated surgically. Activity normal.



Case 13—Blood-sugar (per cent.) and temperature readings during an attack of bronchitis. A.–B., insulin 18 units b.d.; B.–C., 20 units b.d.; C.–D., 25 units b.d.; D.–E., 20 units b.d. Diet: diminution of usual diet during fever.

CASE 11.—Boy aged 15½. Always a "blue" child from birth and known to suffer from a congenital heart. One sister two years older has severe diabetes and cataract (Case 10). One aunt on father's side had diabetes. At age of 9 (May 1927) he lost weight and began to suffer from thirst and polyuria; his urine was then found to contain sugar. *Severity* (January 1928). Resting blood-sugar, 0·22. Sugar tolerance (August 1931): F.B.S., 0·2; (50 g. glucose) 0·36, 0·45, 0·49, 0·50, 0·43. Loud systolic murmur and thrill over præcordium; extreme cyanosis with gross clubbing of fingers and toes; right ventricular preponderance in electrocardiogram. Red cell count 9,800,000 per c.mm. Weight: 3 st. 2 lb. *Present treatment.* Diet: total calories, 1277; calories per kg., 44; C. 90, P. 40, F. 80. Insulin: 8 units b.d. *Present condition.* Usual resting blood-sugar, 0·18–0·2. Usual urine findings: sp. gr. 1010–12; rarely a faint trace of sugar. Weight: 4 st. 9 lb. Height: 4 ft. 6½ in. Activity: physical activity very limited because of heart; intelligent and fond of reading.

CASE 12.—Girl aged 7. One uncle died of pulmonary tuberculosis. In October 1929, at age of 3½, she began to pass water frequently and became pale and out of sorts. Her urine was then examined and found to contain sugar and acetone. *Severity.* On admission to hospital in November 1929 the urine (sp. gr. 1050) contained much sugar and acetone. The resting blood-sugar was 0·26, and the weight 1 st. 11 lb. She passed 22·8 g. glucose in 24 hours. Sugar tolerance (November 1931): F.B.S., 0·27; (40 g. glucose) 0·4, 0·46, 0·52, 0·58. Mild attack of hypoglycæmic coma in October 1931. *Present treatment.* Diet: total calories, 1813; calories per kg., 86; C. 110, P. 60, F. 120. Insulin: 12 units b.d. *Present condition.* Usual resting blood-sugar: 0·03–0·09. Usually sugar-free. Weight: 3 st. 5 lb. Height: 3 ft. 8 in. Activity normal.

CASE 13.—Diabetes came on when the patient, a girl, was 4 years old; she died at 5½. *Mode of onset.* In February 1931 she was off colour for several weeks. At the beginning of March she had a feverish cold and her doctor found sugar in the urine. On the following day she became drowsy and gradually comatose and was admitted to hospital in coma. *Severity and course of illness.* Urine: sp. gr. 1040; sugar and acetone in large amount. Blood-sugar 0·49. Comatose. Colon distended with fæces. Tonsils large and septic. Weight: 1 st. 13 lb. After recovery from coma and a period of treatment the tonsils were enucleated in April. Her

blood-sugar readings were extremely unstable and glycosuria was very difficult to control even on 55 units of insulin daily given in three doses. In spite of this she remained very well. Discharged on C. 80, P. 34, F. 50, and 40 units insulin daily in two doses. On this the blood-sugar readings remained unstable and glycosuria was often considerable. She also had mild attacks of hypoglycæmia. In January 1932 she was readmitted. Her sugar tolerance was as follows: F.B.S., 0·37; (40 g. glucose) 0·39, 0·51, 0·57, 0·62, 0·57. She was given a larger diet with less insulin: C. 110, P. 60, F. 50; calories, 1162; calories per kg., 64; and 18 units b.d. Weight: 2 st. 12 lb. While an in-patient she contracted bronchitis which demonstrated how severe was her reaction to infection (see Figure). She was discharged in March 1932 and remained well with a more stable blood-sugar for a few months. In August she developed a cold and became drowsy. Her insulin was then stopped and she was finally admitted to hospital almost moribund.

CASE 14.—This patient was a boy who developed acute diabetes at the age of 13 and died. As a child he had had an operation for inguinal hernia. Five weeks before his death he contracted mumps. The attack was not severe and he did not complain of any abdominal symptoms. After the attack he did not seem very well. Three days before admission to hospital he suddenly became very thirsty, passed large quantities of urine, and could not sleep. On admission he was comatose and extremely dehydrated. He smelt strongly of acetone and his urine was full of sugar and acetone. Blood-sugar 0·65. He died ten hours later despite administration of 190 units of insulin, rectal and subcutaneous salines, and intravenous infusion.

CASE 15.—The patient, a girl, has had diabetes for about 7 years, and is now 21. She was admitted to hospital in February 1926, at the age of 13¼, with a three weeks' history of thirst and polyuria. *Severity and course of illness.* The blood-sugar on admission was 0·38. She was starved for three days and became sugar-free, remaining sugar-free on Graham's twelfth-day diet. The blood-sugar came down to 0·07. She was discharged on this diet. Weight: 7 st. No insulin given. She remained sugar-free on this diet until October 1928. There was then a return of thirst and polyuria, due probably to a dental abscess. Blood-sugar 0·3; weight: 7 st. 7 lb. She was readmitted, her teeth were treated and she was standardised on 10 units b.d. and seven lines (C. 35, P. 52, F. 105). She was again readmitted in May 1932 for restandardisation. Diet was increased to C. 115, P. 60, F. 120, with insulin 16 units b.d. Weight: 9 st. 6 lb. *Present treatment.* Diet: total calories, 1833; calories per kg., 30; C. 115, P. 60, F. 120. Insulin: 20 and 16 units. *Present condition.* Usual resting blood-sugar below 0·1; occasional higher readings. Usually sugar-free. Weight: 9 st. 8 lb. Height: 5 ft. 6¼ in. Sexual development normal; no menstrual periods till May 1932; three since. Activity: lives a normal life at home; plays tennis. On the whole she has not felt quite so well since her diet was increased in 1932. She is introspective about her health and gets worried if she finds a trace of sugar in the urine.

CASE 16.—Boy aged 15. Scarlet fever at 5. Two cousins on father's side have diabetes; one, a boy of 19, since the age of 15 and the other, a girl of 16, since the age of 7; both take insulin. In January 1932, when he was 13¾, he complained of three weeks' thirst, hunger, and frequency of micturition with sudden onset; no wasting. *Severity and course of illness.* On admission (February 1932) he had sugar in urine but no acetone. Resting blood-sugar, 0·14. Sugar tolerance: F.B.S., 0·14; (50 g. glucose) 0·14, 0·18, 0·23, 0·24, 0·19; urine specimens at one hour and three hours contained 8·9 g. glucose in all. In March 1932 he was standardised on C. 150, P. 80, F. 120, and insulin 25 and 23 units daily. He remained well and sugar-free with a resting blood-sugar of 0·04–0·1 until December when he developed an acute maxillary antritis. Diet had subsequently to be reduced to present one. *Present treatment.* Diet: total calories, 1772; calories per kg., 36; C. 100, P. 60, F. 120. Insulin: 25 units b.d. *Present condition.* Usual resting blood-sugar: 0·04–0·16. Trace of sugar often present in urine. Weight: 7 st. 10 lb. Height: 5 ft. 2 in. Sexual development: penis infantile in type, and only beginning to develop; a few pubic hairs only. Activity normal.

CASE 17.—Boy aged 13½. History of occasional colds, measles, and chicken-pox. When he was twelve years old (April 1932) he had a sore-throat, and a fortnight after this he seemed to be passing more urine and eating and drinking a great deal. He seemed out of sorts and lost a good deal of weight in a few weeks. *Severity.* On admission (June 1932), on restricted carbohydrates, the resting blood-sugar was 0·25 g., and he was passing 10 g. glucose in 24 hours. Drowsy; severe ketosis. *Present treatment.* Diet: total calories, 1772: calories per kg., 34; C. 100, P. 60, F. 120. Insulin: 12 units b.d. *Present condition.* Usual resting blood-sugar: 0·07–0·10. Usually sugar-free. Weight: 8 st. Height: 5 ft. 0½ in. Activity normal.

CASE 18.—Boy aged 9½. Scarlet fever at 7. One brother aged 24 has severe diabetes treated with insulin. In January 1933 he developed thirst and polyuria, became out of sorts and seemed to be losing weight. *Severity.* Urine contained sugar and acetone in large amounts. Sugar tolerance: F.B.S., 0·13; (25 g. glucose) 0·21, 0·25, 0·30, 0·26, 0·25. *Present treatment.* Diet: total calories, 1720; calories per kg., 54; C. 165, P. 50, F. 90. Insulin: 12 units b.d. *Present condition.* Usual resting blood-sugar: 0·06–0·10. Usually sugar-free. Weight: 5 st. Height: 4 ft. 8 in. Activity normal.

Age-incidence.—It will be seen from these notes that the diabetes came on in one case at 3, in one at 4, in one at 6, in three at 7, in two at 9, in one at 10, in one at 11, in three at 12, in four at 13, and in one at 14.

THE CAUSE

The disease is familial in six patients but evidence of heredity could be traced in only one of these. Cases 10 and 11 are brother and sister. The former also has double cataract and the latter severe congenital heart disease. A great-aunt in this family is also said to have had diabetes. Case 5 had a brother who died of acute diabetes at 18. Case 3 had a brother who died of diabetes at 25. Case 18 has an older brother with severe diabetes. Case 16 has two first cousins on the father's side with severe diabetes. In the remainder a family history of diabetes was known in only one, and the families appear to be healthy in other respects. These cases support Cammidge's view that diabetes is more likely to be grave when it is transmitted as a recessive characteristic. The manner of onset was broadly the same in all cases but in one the development of cataracts was the first symptom which led to diagnosis.

Predisposing causes.—All the children except the one with congenital heart disease and Case 3 appeared to be in normal health until the onset. Of the infectious diseases mumps was an immediate prelude to the onset of symptoms of very severe diabetes in three. Case 2 had mumps in June, 1925, at the age of 12, followed a few days later by slight epigastric discomfort. A few weeks later thirst and polyuria developed. This persisted and two months after he had a resting blood-sugar of 0·28 and passed 113 g. of glucose in 24 hours. He now needs 80 units of insulin a day. Case 4, at the age of 7, developed "influenza" followed by mumps. The attack was a mild one but was accompanied by some abdominal pain which lasted for eight days. Three weeks after this he developed sudden thirst and polyuria and he was found on examination to have severe diabetes. Now, at the age of 13, he requires 50 units of insulin a day. Case 14, at the age of 13, developed a moderately severe attack of mumps which left him

out of sorts for three weeks. Severe thirst and polyuria then developed, and three days later he sank into diabetic coma with a blood-sugar of 0·6 per cent., from which he did not recover. He never complained of any abdominal symptoms.

Acute pancreatitis is a rare complication of mumps but has been recorded by many authors: Simonin [1] referred to 10, Moutier [2] 74, Freund [3] 8, Dopter [4] 45, and Brahdy and Scheffer [5] 13. Post-mortem examinations are recorded by Lemoine and Lapasset,[6] Sabrazes,[7] and by James.[8] In these three cases extensive changes were found throughout the whole gland and islet tissue was also involved. Glycosuria and hyperglycæmia are mentioned as being present in some of the more severe cases, but diabetes as a sequel is apparently very rare. Cases are described by Harris,[9] Barbieri,[10] Gilhespy and Holden,[11] Patrick,[12] and Dick.[13]

Harris's patient was a man, aged 40, who developed thirst, hunger, and polyuria one month after the onset of an attack of uncomplicated mumps. These symptoms gradually increased and three years later he had lost 30 pounds in weight, and was passing 6440 c.cm. of urine in the day containing 4·6 per cent. of glucose. There is no record of abdominal pain at the time of the attack of mumps.

Barbieri's case was a boy, aged 6, who developed epigastric pain, vomiting, and diarrhœa six days after the onset of mumps, and hunger, thirst and severe glycosuria a few days later. These symptoms subsided after 15 days.

Gilhespy's patient was a boy, aged 16, who, on the fourth day of an attack of mumps, developed thirst and polyuria, and when seen a few weeks afterwards had severe diabetes. He also had tuberculosis and died five months later.

Patrick's patient was a girl, aged 8, who had an uncomplicated attack of mumps without abdominal pain, and two weeks after the onset developed polyuria followed by thirst and hunger. Five weeks after the onset of the mumps she was admitted to hospital in diabetic coma with 8 per cent. of sugar in the urine and died in 36 hours in spite of insulin treatment.

Dick's patient was a girl, aged 13, who within a few months of a moderately severe attack of mumps without abdominal pain was found to be wasted, and to have severe diabetes.

Gundersen [14] states that after epidemics of mumps there is a rise in the death-rate from severe diabetes in the young age-group. Joslin [15] says: "In only a few instances have I been able to associate infectious diseases with diabetes. In fact the more seriously I search for them the more rarely do I find trustworthy instances." Of the eight cases cited here of diabetes following mumps there was only one in which symptoms suggestive of severe pancreatitis were present and this was the mildest case of diabetes. In the other seven, abdominal symptoms were absent or very slight.

In this series the onset was not associated with any other specific fevers. Mild infections preceded the onset of symptoms in three cases and in three others appeared to have provoked an exacerbation of symptoms which led to diagnosis. In the remainder, however, the diabetes appears to have come on silently, and usually with great rapidity and severity, in children who had previously been in perfect health.

SEVERITY

The severity of the disease in children is well shown by the sugar-tolerance curves which have been done in these cases. It is true that many of these curves were taken after the condition had been present for several years, but there is evidence that the sugar tolerance is usually severely impaired within a few weeks or days of the first onset of symptoms and the suddenness of the onset of symptoms in some cases is very suggestive of sudden failure.

Case 13 was healthy until she was 4 years old. She then seemed out of sorts for a few weeks, developed a feverish cold with thirst and polyuria, and the next day becomes comatose with a blood-sugar of 0·49. Case 7 was healthy until he was 10. He then became thirsty for a few weeks, scalded his foot slightly, and was admitted to hospital four days later on the verge of coma with a blood-sugar of 0·38 per cent. Case 12 was well until she was 3 years old. She then developed frequency and became pale and out of sorts. Three weeks after the onset her doctor found sugar in her urine and on admission a day later the specific gravity of the urine was 1050 and contained a great deal of sugar and acetone, and her resting blood-sugar was 0·26 per cent. She was then passing between 22 and 36 g. of glucose in 24 hours.

Among these, there is no case which could be called mild and even those who attended a doctor as soon as could reasonably be expected were found to have gross impairment of sugar tolerance and ketosis.

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(To be concluded)

Clinical and Laboratory Notes

A CASE OF ADDISON'S DISEASE TREATED WITH COMMON SALT

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A LEADING article in THE LANCET of Jan. 20th, 1934, referred to the use of common salt in the treatment of Addison's disease, and gave an account of experimental work showing alteration in the amounts of inorganic bases present in the blood in adrenal dysfunction. In the following case opportunity was taken to investigate the concentration of the metallic bases in blood before and after the administration of sodium chloride by mouth. It is evident that no conclusions can be drawn from one set of figures in an isolated case, but the results are of interest in confirming the presence of abnormalities already described by the American workers.

The patient, a man aged 52, was admitted to St. George-in-the-East Hospital on March 10th, 1934. The diagnosis of Addison's disease was made at the London Hospital in 1927, and since then he has been in hospital on several occasions. In 1931 he received a course of injections of cortical extract which was followed by improvement in his general

condition. He was readmitted in 1932 with symptoms of increasing weakness, anorexia, vomiting, giddiness, and precordial pain. (Blood-sugar 76 mg. per 100 c.cm.; Wassermann reaction negative.) A further course of cortical extract was given. His blood pressure at this time was 125/88 mm. Hg. (An abnormal feature of this case has been that the blood pressure has never been observed to be very low.) He remained fairly well for 14 months and was able to do some light work, but during four weeks before admission there had been recurrence of symptoms. He complained of increasing weakness, giddiness, and slight cough. He though that the pigmentation had increased in intensity.

On examination there was generalised pigmentation, excessive in the axillæ, nipples, and on the back of the neck. Some pigment was present in the buccal mucosa and in the palate. His blood pressure was 120/80. After a sample of blood had been taken for analysis he was given 60 grains of common salt daily by mouth in addition to the amount usually taken with meals, making a total of approximately 5 grammes per diem. A week later blood was again taken for examination. The blood pressure was found to have risen to 140/85. His general condition had improved, the extreme weakness had gone, and he was able to get about quite well. He stated that he was feeling as well as ever and wished to go home. He was advised to continue taking an increased amount of common salt daily.

I am indebted to Dr. A. B. Rosher, pathologist to the Mile End Group Laboratory, for undertaking the blood analysis and for his permission to utilise the results. The figures obtained are shown in the accompanying Table.

	Before taking NaCl.	After taking NaCl.	Normal.
Calcium	10·8	8·16	10·0
Potassium	56·0	16·0	16 to 22·0
Sodium	248·0	452·0	330·0
Magnesium	1·25	1·01	1·6
Chloride as Cl ..	268·0	455·0	300·0 to 500·0

All results are expressed as mg. per 100 c.cm. of blood.

It will be seen that the most striking variations from normal, before giving sodium chloride, are the low sodium and the increased potassium content of the blood. The administration of sodium chloride resulted in a reversal of this state. The blood sodium rose to above the normal level and the potassium decreased to the minimum normal figure. These results are in general agreement with those referred to in THE LANCET—namely, that in Addison's disease the sodium content of the blood is low and can be raised by the administration of sodium chloride by mouth. Although Loeb stated that the potassium balance in adrenalectomised dogs was undisturbed, Harrop, Soffer, Ellsworth, and Trescher found that potassium, calcium, and magnesium were all increased. In the present instance the figures for calcium and magnesium are approximately normal, but the potassium value shows considerable increase in the first specimen of blood taken. The period of observation was too short to arrive at any conclusion as to the real value of sodium chloride as a therapeutic agent in the treatment of Addison's disease, but the patient appeared to improve considerably and the systolic blood pressure rose 20 mm. Hg. The patient himself stated that he felt very much better and that the improvement had been as marked and rapid as on the previous occasions when he had been treated with cortical extract.

I am indebted to Mr. Alan Gairdner, medical superintendent of the hospital, for permission to publish the case.

LOOSE BODIES FROM A KNEE-JOINT

OSTEITIS DISSECANS

BY W. B. R. MONTEITH, M.A. Camb., F.R.C.S. Edin.

LOOSE bodies have long been recognised as one of the possible causes of functional disability of joints, and more particularly of the knee-joint. Mr. H. A. T. Fairbank[1] has recently discussed the pathology of osteitis dissecans, favouring the view that the morbid processes result directly from injury. In the following narrative the condition might more correctly be described as a sequel to osteitis dissecans rather than the actual condition itself. The complete renewal of functional ability following operation, in spite of about 36 years' lameness, seems further to show the importance of reminding ourselves, when dealing with a single stiff and painful joint, of this curable condition.

Mrs. A., aged 46, consulted me in December, 1932, because of weakness and recurrent swelling of the right knee, and inability to bend it. At the age of 10 she fell on a hard stone, and the knee had given trouble ever since. Six or seven weeks after this first injury she jumped off a gate, and felt "as if something shifted in the knee and then clicked back into place"; she fell down with the pain. Seven years ago (at the age of 39) she fell down a step, doubling the right leg under her. Since then she has been unable to kneel and the knee had frequently been greatly swollen. She had always been able to ride a bicycle in spite of the disability. The left knee had never caused trouble; all other joints were normal and there was no rheumatic family history.

FIG. 1.—Tracing from radiogram of knee-joint, showing three loose bodies (stippled.)

On examination, the right knee was swollen and some fluid was present. Flexion was possible to a very small degree only on account of pain. A "loose body," the size of a pea, was felt on the lateral aspect of the external femoral condyle. While this body hardly seemed sufficient to account for the symptoms, it was supposed that it might sometimes lodge between the articular surfaces. The patient was admitted to the Butterfield Cottage Hospital, Bourne, and an X ray photograph was taken. Before photographing, the leg was extended and fixed on a splint, to prevent any shifting of a loose body between the time of examination and the subsequent operation. The photograph showed not one but *three* loose bodies, the largest lying between the femoral condyles and being obviously the cause of the symptoms. (Fig. 1.)

I operated the next day. The movable body lying over the external condyle was transfixed by a straight needle passing through the skin. A vertical incision 4½ in. in length was made over the lateral aspect of the knee-joint and the needle was followed down to the "body," which was removed. (Fig. 2.) The knee was then slowly flexed and a gloved finger introduced into the joint was able to feel the largest body sliding up the inclined plane of the condyle. Removal was effected by means of curved volsellum forceps. It may be worthy of note that whereas the largest body and one of the others was free within

[1] Brit. Jour. Surg., 1933, xxi., 67.

the joint cavity, the third was attached to the bone by a vascular pedicle. The usual precaution of tight bandaging was taken to prevent effusion into the joint. The wound

FIG. 2.—The loose bodies, beside a halfpenny.

healed perfectly; the patient was in hospital three weeks; and now, after eight months, the joint is faultless.

In this case no "crater" in bone was visible in the X ray photograph, such as is described as occurring in osteitis dissecans, but the length of history might surely quite well account for the absence of that appearance. The patient, quite unprompted, gave a history of three distinct injuries. It seems to me that on one of these occasions a small area of bone and cartilage necrosis was caused, such as is described in osteitis dissecans and that at one of the latter accidents this was displaced into the joint cavity. Alternatively, each body might have been caused by a separate injury.

The absolute necessity of taking an X ray photograph when a loose body is suspected, even if one can be felt, seems to be well shown. Also, the completeness of the recovery in spite of the patient's age and the long history of disability is interesting.

Bourne, Lincs.

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE

SECTION OF EPIDEMIOLOGY AND SECTION OF PSYCHIATRY

AT a joint meeting held on April 27th, Dr. J. D. ROLLESTON being in the chair, a discussion on the value of the

Treatment of Mental Deficiency

was opened by Dr. F. C. SHRUBSALL for the section of epidemiology and state medicine, and by Dr. W. REES THOMAS and Dr. NOEL BURKE for the section of psychiatry.

Treatment, Dr. SHRUBSALL explained, included training and supervision for the encouragement of such abilities as existed and the stabilisation of character. Its value meant the value to the individual sufferer, to the other members of his family, to the community at large, and to the local authority. If social and educational treatment were to be of value, it was of the utmost importance that the process of ascertainment should be as complete as possible. At the end of 1933 London had actually been dealing with about 20,000 cases and had a knowledge of some 11,000 others, a total which roughly corresponded with the estimate of the Wood Committee. Every year a number of defectives had to pass from supervision into institutional care as their parents died or became unable to provide a home for them. These persons would in any case need some form of public assistance of a residential character, and so the choice for the local authority was not between providing institutions and nothing, but between providing certified institutions and public assistance institutions. For many reasons the certified institutions were more suitable and more economical.

Perhaps the most valuable activity of institutional treatment was the prolonged care of low-grade cases, and of patients of higher mentality who were handicapped by physical defects. It was a great boon to such sufferers to be kept away from comparison with the relatively normal inmates of public assistance institutions. Physically defective patients imposed extra cost on the latter institutions, and many defectives if not in certified institutions would have to remain in hospitals for chronic cases, a nuisance to their fellow-patients and the staff. For defectives who were able to work, a certified institution offered a safe asylum while protecting the community against crime and the propagation of undesirable offspring, and enabling the patients to contribute towards their own maintenance and to gain the happiness which resulted from useful occupation. The cost of such institutions was little more than that of an ordinary public assistance institution. A certain number of higher-grade patients with more emotional control acquired from training sufficient stability of character to be restored to life in the community, first on licence and subsequently on discharge. There was thus a definite flow of persons back to community life, so that an additional expenditure of three shillings to six shillings a week brought the community a substantial dividend. Guardianship cost from ten shillings to fifteen shillings a week and provided a closer degree of control than would be available if the family simply received out-relief. Supervision helped the family and the patient, enabled closer care to be provided at once if necessary, and assisted the younger persons to obtain employment.

Special schools excluded the lower grades and the merely dull or backward. Higher-grade cases leaving special schools could secure posts more readily and at a higher rate of pay than children from the lower forms of ordinary elementary schools. Figures from one school over a period of 14 years showed 86 per cent. of employable and 82 per cent. of employed ex-pupils. Moreover, of 168 mentally defective adults charged before magistrates in the last two years, 65 only had attended special schools; considering that over 700 defectives left special schools in London every year, the proportion was a low one. The danger that defectives left in the community might produce large numbers of defective children was less than had been stated. According to the Brock Report, the abnormal fertility of defectives was largely mythical and mortality among their children was unusually high. Moreover, the children of defectives generally had a mentality superior to that of their defective parents.

Medical or surgical treatment offered little prospect of success; the treatment of syphilis at an early age did something to reduce the number of patients who developed specific encephalitis later, and a few cretins were benefited by thyroid treatment. The Mental Deficiency Acts and Section 55 of the Education Act might, said Dr. Shrubsall, be compared to a filter which, by removing insoluble residues, enabled the social machine to function more smoothly. Defective children in ordinary school classes held back the remainder or were left to stagnate; a probation officer saddled with a group of mental defectives could

neither place them properly nor devote the necessary time to his other charges. Many petty offences by defectives were due to stupid rather than deliberately antisocial acts. Public hospitals were relieved of helpless and dirty patients, and families were relieved of children who would otherwise be a constant anxiety. The public, in short, received a return for its expenditure. "It is wise economy," quoted Dr. Shrubsall, "to spend more to waste less."

Dr. THOMAS pointed out that the value of treatment depended on the object in view. Little progress had been made in research into causation, but considerable success had been achieved in training patients to carry on an independent social existence. The advisability of training a defective who could not be expected to become wholly or partly self-supporting was often questioned, but mere isolation and handling without any form of treatment or any of the amenities of life were not a possible solution but a remnant of the Middle Ages. Colony life enabled patients and staff alike to live up to their full capacity, and gave the patient the happiness of relative success. Leave of absence on licence provided an excellent method of deciding the ability of a patient to live in the community. Visitors who taught harassed parents the elements of how to train defectives, and possibly provided some material, did much good. Where a number of patients could be collected, occupational and industrial centres could be conducted with much benefit. The nation should regard its progress in the treatment of defectives as a compliment to its good sense and medical instinct. Expressions of incompetence formed a large part of the vocabulary of defectives living under unsuitable conditions, and training often prevented them from becoming a menace to society.

Dr. BURKE stressed the importance of treating the individual rather than the condition in order to relieve the feeling of inferiority which came from competition with the normal world. It was important, he said, to secure for those who were physically handicapped some sort of physical success, no matter how rudimentary, in occupation or handicraft. Training in reasonableness, self-control, and trustworthiness could be given through the medium of the Scout or Guide movement. The mental hospital environment was definitely bad for defectives, and produced a type recognisable by a peculiar dullness and lethargy.

DISCUSSION

Dr. RALPH WILLIAMS pointed out that mental defectives were often more efficient factory workers than normal persons, because of their greater capacity to perform monotonous tasks.

Dr. LETITIA FAIRFIELD said that the criminal defective, to whom so much attention had been drawn, was the untrained defective, who had not been through the special school. London had made every effort to ascertain these defective criminals, and—with all the talk about this menace to society—the numbers reported every year hardly amounted to a full morning's work at one police-court. A thorough comb-out of the casual wards had found last year only two defectives. The problem of training would continue to be urgent, however drastically defectives were dealt with by sterilisation and other means.

Dr. G. DE M. RUDOLF narrated that in 1930 Brentry House, near Bristol, had instituted a system of behaviour records and new methods of handling patients to give them the utmost freedom and responsibility. The figures of misbehaviour had fallen amazingly as a result of the new régime.

Dr. ISABEL WILSON remarked that money spent on training defectives went very largely to relieving their homes and getting better treatment for the other children. There was, she thought, too great a tendency to teach defectives in institutions facts about institution rather than about community life.

Dr. MURDO MACKENZIE considered it a pity that the special schools were associated with the phrase "mentally deficient," which had an unfavourable effect on parents.

Dr. W. A. POTTS quoted figures from Birmingham which showed that the incidence of high-grade mental deficiency closely followed the death-rate in the various wards of the city.

Dr. C. J. C. EARL said that prolonged residence in an institution did not fit a patient for community life unless he were trained to more or less complete freedom. He pleaded for closer psychiatric investigation and treatment of defectives.

Sir W. DALRYMPLE-CHAMPNEYS regarded the modern treatment of defectives as evidence of the progress of the human race, and doubted whether it could have been achieved in any but the Christian era.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY

A MEETING of this society was held at Liverpool on April 6th with Prof. DANIEL DOUGAL, the president, in the chair.

Breech Presentation

Dr. J. W. BURNS, reading a paper by himself and Mr. C. M. MARSHALL, contended that much of the text-book teaching on this subject is unsupported by facts—with the result that there was a fœtal mortality of 15 to 30 per cent. in breech cases throughout the country. Breech labour, he said, carries great risks both for mother and child, but attempts to prevent it by external version should not be made as a routine, since manipulation of the uterus is liable to separate the placenta. In management of the labour itself everything possible must be done to prevent early rupture of the membranes.

The patient is put to bed as soon as labour has started. She is encouraged not to bear down during the pains, and the usual enema or purgative is withheld. One vaginal examination is made to find out whether the cord is presenting. A comfortable binder (the "labour belt" devised by Sister Miller of the Liverpool Maternity Hospital) is applied; it has numerous buckles and straps which can be readjusted from time to time. There is much to be said for inserting a sausage-shaped balloon filled with water into the vagina to support the forewaters until the os is fully dilated. (This closely resembles the bag suggested by Farquhar Murray for the treatment of placenta prævia.) During the first stage the patient is given nourishing drinks. She is encouraged to rest between pains. Bromides and chloral are useful, especially the latter.

When the membranes rupture a vaginal examination is made to find out whether the cord is prolapsed, how much dilated the cervix is, and whether the legs are extended, if this has not been discovered in the antenatal period. Nothing more is done until the breech appears at the vulva, except that the labour belt is adjusted periodically from above down as the uterus descends. When the breech appears the patient is placed in the cross-bed position and a Clover's crutch is applied: the binder is tightened. No handling of the fundus is allowed, because of the danger of causing premature separation of the placenta. The attendant feels for the feet as soon as the buttocks are

born and gently lifts them over the perineum; he takes care not to pull on the limbs. The umbilicus usually follows with the next pain. The cord is found and drawn down so that further descent of the infant may not cause tension on it. (Dr. Burns thought it high time that teachers refrained from instructing pupils to endeavour to place the cord in some position where it will not be subjected to pressure. "This is an impossibility and no one nowadays attempts it.") After the next pain a finger is inserted to find out whether the arms are in the pelvis; if so, they are gently drawn down. The shoulders follow with the next pain. At this stage the head is entering the brim. The attendant supports the body and allows internal rotation of the head to occur; as soon as the occiput has come forward he allows the body to hang from the vulva. This brings about flexion of the head and brings the nape of the neck well into the subpubic angle.

The mother's perineum and soft tissues act as the fulcrum. The suboccipital area of the infant's skull is in contact with either the back of the symphysis or the descending rami of the pubes. The child's weight acting through the neck and across the fulcrum forces the head to rotate on its horizontal axis—i.e., flexion is induced. This method of producing flexion acts whether the head is just above the brim or whether it has entered the pelvic cavity. If the head is at the brim, this method has several advantages; no traction is required by the operator; the shortest diameters of the child's head are rolled through the brim (i.e., the suboccipito-frontal and suboccipito-bregmatic); the minimum of force necessary to produce flexion of the head is used; undue haste in delivery is avoided; there is no need for fundal or suprapubic pressure, and the danger of premature separation of the placenta is thus minimised. If the head is in the cavity flexion of the head is still necessary, so that the shortest diameters of the child's head may distend the perineum, and thus the risk of tearing the perineum or damaging the head may be minimised. By allowing the baby to hang from the vulva for one or two minutes the nape of the neck is brought more into the subpubic angle without the use of undue force. The force employed is limited by the child's body-weight.

As soon as the suboccipital area of the head can be seen in the subpubic angle delivery can be brought about by lifting the child up towards the mother's abdomen.

The operator should stand on the right side of the patient, and taking the child's feet in his right hand exert tension on the body from the moment the feet are seized. This tension must be enough to keep the neck of the child taut, and it is maintained while the legs and body are lifted in an arc until the body is vertical. By this manœuvre the suboccipital area is made to rotate around the point of contact between the skull and the pubic rami, so that the suboccipito-mental diameter distends the perineum, then the suboccipito-frontal, and lastly the suboccipito-bregmatic. If tension is not maintained throughout this manœuvre the child's head simply rotates within the pelvis, the occiput recedes and the perineum is not distended. Further, the child's neck is merely bent, and much damage may be done to the structures in it without the head being delivered.

Mr. MARSHALL described the technique he used in delivering the frank breech in primigravidæ. As soon as the anterior buttock is showing the mother is put in the lithotomy position, the whole perineum is infiltrated with about 50 c.cm. of 0·5 per cent. novocain solution, the index-finger is placed in the anterior groin, and descent with the pains is aided by traction. When the anterior buttock is showing well, and the posterior strongly bulging the perineum, a mediolateral episiotomy is performed. The posterior groin is then reached if necessary, and the buttocks are born. Chloroform is administered on an open mask, and the extraction is completed. When the arms have been brought down the body is allowed to hang from the vulva for some moments. In rather less than half the cases the amount of neck visible lengthens, and the head enters the pelvic cavity. The head is then delivered by Dr. Burns's method. If the head does not enter readily or there is delay in its descent through the passage, pressure with the free hand is applied to the head just above the pubes.

As a rule, Mr. Marshall said, delivery was easily effected by these methods. Forceps were used in a few of the very early cases, but were now very seldom required. In 33 consecutive breech deliveries in primigravidæ there had been only one stillborn child: this was in one of the early cases and one of 27 in which the legs were extended; the head was difficult to extract, and Mauriceau's grip was used to bring it through the outlet. The average weight of the babies was 7 lb. The perineal anæsthesia was useful because it allowed the mother to bear down with less pain and apprehension, because groin traction was almost painless, and because episiotomy could be done at any time without resorting to general anæsthesia. To patience and the above methods Mr. Marshall attributed the small number of cases in which it had been necessary to decompose the extended breech and extract. This was done in only two cases: in one groin traction had failed, and in the other unsuccessful attempts had been made to deliver before admission.

In the summing up it was emphasised that no midwife should be allowed to undertake a breech labour unassisted: she should send the patient to her own family doctor or to an institution as soon as the diagnosis was made.

Fluid Restriction in Pregnancy Toxæmia

Mr. W. J. CHISNALL read a paper on the treatment of albuminuria of pregnancy associated with hypertension, according to the method advocated by J. O. Arnold and Temple Fay.[1] In pre-eclampsia, he said, there was a progressive diminution in urinary output, associated with storage of fluid in the body. The object of the treatment was to correct the state of hydration by reducing the fluid intake, so that it never exceeded the urinary output of the day before. Accessory measures adopted in some of the cases with a view to reducing intracranial tension were the intravenous injection of glucose (40 c.cm. of a 20 per cent. solution) or magnesium sulphate (20 c.cm. of a 20 per cent. solution) and spinal drainage. These methods were used only if high blood pressure, headache, and dimness of vision were not quickly responding to reduced fluid intake.

A standard diet is employed. Its calorie value is 1500 and it contains 70 g. protein, 30 g. fat, 240 g. carbohydrate, and 3 g. salt. Beef or mutton, cod or hake, boiled puddings, bread and butter, tea and cocoa are allowed. Meals are taken at 8 A.M., 12 noon, and 4 P.M. and a drink is given at 8 P.M. No eating or drinking between meals is permitted. When a patient is admitted a history is taken and a complete examination made. An arbitrary figure is chosen for fluid intake for the first 24 hours, from 600 c.cm. in a mild case down to nil for a severe case. All urine passed is collected and measured. A dose of mist. alba is given each morning before breakfast. On the morning after admission a catheter specimen of the urine is obtained, and a simple enema is given. A sample of the 24 hours specimen is put up in an Esbach tube each night. After the first day, the amount of fluid allowed is equal to the urinary output for the previous day. If the patient is discharged undelivered, she is instructed to keep to the

[1] Surg., Gyn., and Obst., 1932, lv., 129; see THE LANCET 1932, ii., 639.

diet and fluids taken in hospital: she still takes the mist. alba every morning, and attends the antenatal clinic weekly. If improvement is only temporary or not adequate, labour is induced by the bougie method.

At the Walton Hospital, Liverpool, between October, 1932, and October, 1933, the method had been applied, Mr. Chisnall said, to 39 cases of pre-eclampsia, defined as a disorder of pregnancy associated with albuminuria, œdema, and hypertension, without evidence of previous nephritis. Among them were 28 primigravidæ. Medical treatment sufficed in 36 cases, but in the other 3 (all primigravidæ) labour was induced because improvement was not maintained. The treatment in favourable cases was followed by reduction of blood pressure to normal figures, disappearance of œdema, diminution of albuminuria, and cessation of symptoms. In all cases a healthy live child was born; in 36 the mother was cured, and in 3 the symptoms recurred after partial relief. Despite the restricted fluid intake a progressive increase in the daily volume of urine occurred, lasting from 4 to 10 days, after which the volume remained steady. This was equal to the volume of fluid which could be allowed without storage occurring. If the intake went beyond this figure the symptoms tended to recur.

REVIEWS AND NOTICES OF BOOKS

Recent Advances in Medicine

Clinical, Laboratory, Therapeutic. Seventh edition. By G. E. BEAUMONT, D.M., F.R.C.P., and E. C. DODDS, M.V.O., M.D., F.R.C.P. London: J. and A. Churchill. 1934. Pp. 485. 12*s.* 6*d.*

THE great success which this book has achieved during its ten years of life has been well deserved. A number of notable additions appear in the present issue. The first chapter now includes an admirable review of the present position of the sex homones—to the elucidation of which Prof. Dodds has largely contributed—and the vitamins, and ends with an account of the parathyroids and their relation to calcium metabolism. In the chapter on the kidneys the urea-clearance test is fully described, and a good account is given of the ketogenic diet in the treatment of urinary infections. The chapter on the stomach shows little alteration—a fair comment on the lack of progress made in the treatment of digestive disorders. A few additional illustrations are included in the account of the electrocardiograph, but the space allotted to this important branch of cardiology is still perhaps rather too small. Some help in the actual handling of the apparatus might be appreciated by readers who are well served with detail in the very full account of basal metabolism determinations. In the next edition a short section on radiography of the heart might also be included with advantage. The conclusion reached on sanocrysin in the treatment of pulmonary tuberculosis is that its value is doubtful, the immediate and ultimate results of its use being often disappointing. A number of changes are found in the laboratory methods of blood and urine examinations, which, as in previous editions, are given in enough detail to be of practical service.

"Recent Advances in Medicine" is now a standard work, which will continue to attract grateful readers in ever larger numbers.

A Diabetic Manual

Fifth edition. By ELLIOTT P. JOSLIN, M.D., Clinical Professor of Medicine, Harvard Medical School; Consulting Physician, Boston City Hospital. London: Henry Kimpton. 1934. Pp. 224. 10*s.* 6*d.*

IN its fifth edition this well-known manual has been considerably altered and greatly improved. The statistical data and charts supplied show the great improvement which has taken place in the treatment of diabetes, even as compared with the early and middle Banting period. Dr. Joslin does not advocate the extreme high carbohydrate-low fat diet, containing 250–350 g. of carbohydrate and 50 g. of fat, but uses a moderate one of 150 g. of carbohydrate and 90 to 100 g. of fat. The book offers useful hints on the control of the blood-sugar in difficult cases, and the treatment of coma is fully discussed. Dr. Joslin stresses the importance of the care of the feet, because the incidence of gangrene of the foot is still much too high. For the treatment of corns, the coöperation of a skilled chiropodist should be enlisted. The prevention of athlete's foot (ringworm of the toes) seems to require special precautions. The increasing incidence of diabetes among elderly persons, especially women, is disturbing. Dr. Joslin makes a strong plea for the avoidance of obesity, which he thinks is a prominent factor in its production.

The photographs of diabetic patients running, jumping, and the many sketches, provide an encouraging indication of the success of modern methods and make the book attractive to read.

Healthy Childhood

By HAROLD C. STUART, M.D., Assistant Professor of Pediatrics and Child Hygiene, Medical School and School of Public Health, Harvard University; Associate Physician, Children's Hospital, Boston, Massachusetts. London and New York: D. Appleton-Century Company Inc. 1933. Pp. 393. 8*s.* 6*d.*

THE convention in 1930 of the White House Conference on Child Health and Protection by President Hoover was an event which marked the recognition of the imperative call for a wider understanding of the physical and mental needs of childhood, and it is perhaps significant that the whole machinery of the conference was put in motion during a period of national crisis. It will be some considerable time before it will be at all possible to evaluate the work of the conference and before much of the data gathered by subcommittees can be generally assimilated. The "Children's Charter" (which Dr. Stuart quotes in full) may perhaps seem at first sight too idealistic and nebulous to serve as a working basis for investigation and research, but such a simple statement of the aims of the conference is definitely enlightening. The Century Childhood Library has been published with the object of rendering much of the material of the conference reports available to parents, and in this work Dr. Stuart, who was himself vice-chairman of the committee on the growth and development of the child in the medical section of the conference, has given a résumé of the physiology and development of the normal child, and of the aspects of preventive medicine concerned with the preservation of child health. Some indication of the scope of the book is given by

the chapter concerned with the prevention of infectious diseases, in which the author describes the use of diphtheria toxin-antitoxin, the limitations of the Dick test, the employment not only of convalescent serum but of placental extracts in the prevention of measles, and refers to (though he does not recommend) the use of B C G. Whilst his treatment of the subject has necessitated the use of a considerable number of technical terms, Dr. Stuart has been singularly successful in presenting it in a form which should be perfectly clear to the educated layman. It is possible that even some of the medical profession may find in it a gentle reminder that they must polish their armour if they are not to be caught napping by their patients' parents!

Marriage and Parenthood

Issued by the Marriage and Parenthood Committee of the Society of Friends. London: Friends Book Centre. 1934. Pp. 16. 3*d*.

THIS excellent little brochure contains four chapters entitled The Engagement, Marriage, Parenthood, and The Home. The author, whoever he is, deserves congratulation on the vision he has displayed in relating the new outlook of marriage and parenthood with the religious values in the perspective of which the Quaker believes all human aspirations should be viewed. From the spate of books, pamphlets, and leaflets dealing with the problems of human reproduction, this little document stands out by reason of its breadth, its understanding, and its sobriety. Doctors are often consulted by anxious parents as to what advice should be given to young people who are contemplating matrimony. They may even be puzzled to know what advice to give to their own children when in this predicament. This brochure is recommended, not as a source of information on physiological problems, but as a gentle reminder that, over and above the knowledge of sex psychology and physiology which so preoccupy us to-day, a successful and durable marriage makes spiritual demands which it is well to recognise beforehand.

A Text-book of the Practice of Medicine

Fourth edition. By Various Authors. Edited by FREDERICK W. PRICE, M.D., F.R.S. Edin., Consulting Physician to the Royal Northern Hospital; Senior Physician to National Hospital for Diseases of the Heart. London: Humphrey Milford, Oxford University Press. 1933. Pp. 1995. 36*s*.

IN the fourth edition of this popular work many articles have been largely rewritten, and the sections on the diseases of the spleen, blood, and lymphatic system entirely so. Amongst recent methods of treatment now included are the use of Felton's serum in pneumonia, of insulin and glucose in heart disease, and of the compound mercurial diuretics; a very brief reference without details is given to the ketogenic diet in coliform bacillus infections. A full account of idiopathic hypochromic anæmia is now supplied, and brief notes on the filtrable viruses, agranulocytosis, Simmonds's disease, amongst over 50 new subjects mentioned. Of the 13 new illustrations, which hardly come up to the standard of the text, five are orthodiagrams of the heart and two electrocardiograms. It was not easy to find any account of how an orthodiagram is taken or of the normal measurements of the heart as estimated by this means. The electrocardiograms are excellent and their interpretation clear and concise. It is interesting to note the reversion in this edition to the old names of Graves's disease and Hodgkin's disease in place of hyperthyroidism and lymphadenoma.

Dr. Price and his distinguished contributors may be assured that this edition is likely further to enhance the well-deserved reputation of their work.

The British Journal of Surgery

THE April issue (Vol. XXI., No. 84) contains the following papers: A Contribution to the Study of Pulmonary Lobectomy, by A. Graham Bryce (Manchester). An experimental investigation into removal of a lobe of the lung in the cat by the three-stage operation of producing adhesions, ligaturing the pedicle, and excision of the gangrenous lobe.—Multiple Carcinoma of the Colon, with Four Original Cases, by A. J. Cokkinis (London). The growths are regarded as being all of primary origin; their relationship to multiple adenomata is discussed, and their clinical significance is emphasised.—Some Experimental Observations bearing on the Etiology of Megacolon, by Harold Burrows (London). Injections of crystalline silica into the mesentery of the cæcum has been followed by cæcal enlargement. It is suggested that persistent irritation of the sympathetic nerve-supply is the cause.—The Pathology of Acute Strangulation of the Intestine, by Robt. L. Holt (Manchester). An experimental investigation to determine the parts played by perforation and peritonitis, by absorption of toxins, by withdrawal of blood from circulation, and by dehydration, in death from strangulation of the intestine.—Neurosurgery in the Treatment of Diseases of the Peripheral Blood-vessels, by D. J. MacMyn (Mayo Clinic). An outline of the views held and the treatment employed at the Mayo Clinic in certain vascular diseases, particularly in thrombo-angiitis obliterans and Raynaud's disease.—The Selenide Treatment of Cancer, by A. T. Todd (Bristol). An account of treatment by a combination of injection of a colloidal selenide preparation with X-radiation: the results in 155 cases of inoperable cancer (see p. 963).—Bilharzia Disease in England: the Cystoscopic Appearances of the Bilharzia Bladder Before and After Intravenous Injections of Sodium Antimony Tartrate, by J. B. Christopherson and R. Ogier Ward (London).—Spindle-celled Mesenteric Tumours, with Remarks on Similar Retroperitoneal Tumours, by H. A. Phillips (Melbourne). A discussion of the origin, pathology, and classification, with an account of six personal cases.—Observations on Pleural Absorption, by R. C. Brock (London). Observations on the factors influencing the absorption of fluid from the intact and inflamed pleura in rabbits, with a discussion of the clinical bearing of the results.—The Plan of the Visceral Nerves in the Lumbar and Sacral Outflows of the Autonomic Nervous System, by Hugh C. Trumble (Manchester). A description of the autonomic nervous system based on the work of Langley and Anderson together with numerous dissections made by the author. A less chaotic nomenclature than that current in recent literature is suggested.—Malignant Adenoma of the Prostate with secondary growths in the vertebral column simulating Pott's Disease, by W. E. Carnegie Dickson and T. R. Hill (London). The primary growth was very small. The bony metastases were completely osteoclastic, and the main symptoms were due to rapid involvement of the spinal cord.—Primary Carcinoma of the Liver: with report of a case successfully treated by Partial Hepatectomy, by A. Lawrence Abel (London). A comprehensive description of the disease as it appears in the literature, followed by a description of the treatment and pathology of a case.

The issue also contains accounts of some rare and obscure cases.

THE TEACHING OF SPEECH.—The price of Mr. Sibley Haycock's book, reviewed in our last issue (p. 902) is 7*s*. 6*d*. post free.

THE LANCET

LONDON: SATURDAY, MAY 5, 1934

THE G.M.C. ELECTION

Dr. H. GUY DAIN was elected on Friday last a direct representative of the registered medical practitioners of England and Wales, thus filling the vacancy created by the death of Dr. CHRISTINE MURRELL. Dr. DAIN has been in active general practice in Birmingham for more than 36 years and is known by his colleagues as a careful, wise, and energetic practitioner. For the last 20 years he has taken part in medico-political work of various kinds and has held offices culminating at last in the chairmanship of the Insurance Acts Committee—a committee which, although it enjoys the generous hospitality of the British Medical Association, is in fact the executive committee of the Insurance Medical Service. His election should give satisfaction to the profession.

Before the result of this by-election was declared, steps had been taken for putting in train an electoral system under which the places occupied for the last five years by Sir HENRY BRACKENBURY and Mr. BISHOP HARMAN when they retire in the coming autumn should be filled. They are both under the Act capable of re-election, and, should they seek the suffrages of the constituency, the medical profession will not be unmindful of their services rendered on that body to the interests of the general practitioner and particularly of their efforts to secure some revision in the medical curriculum which will bring it more into line with the aims and needs of general practice. Now an electoral system which has returned to the General Medical Council three such useful representatives of the profession cannot lightly be criticised, but the fact remains that the method chosen has not brought them to their position by the free and unfettered vote of the medical profession. As regards Dr. DAIN'S election it did not really take place last Friday but last year, when a notice appeared in the supplement of the *British Medical Journal* of Dec. 23rd (page 315) stating that in connexion with the G.M.C. by-election certain nominations were received for selection by the English and Welsh constituencies in the Representative Body of one candidate to receive the support of the Association. There followed the names of nine candidates and the voting resulted in Dr. DAIN being selected. This was in actual fact the time when Dr. DAIN'S election was secured, for, as a member of the B.M.A. Council has pointed out, no private candidate could possibly have a chance of success against such a nominee. And the speaker went on to comment upon an election devoid of competition in which no candidate thought it worth while to address the electors, and one out of which all interest had been crushed. Might not these words fairly be applied to last week's election?

In the Marylebone division of the B.M.A., of which one of the retiring candidates is a member, the hon. secretary of the division summoned "a meeting of the whole profession" to consider the nomination of a candidate or candidates to be recommended for election. There are more than 700 members of the B.M.A. in the division, but the attendance at this meeting did not exceed 20, and although support was offered *nem. con.* to the two retiring candidates, free expression was given to the drawbacks of the electoral method and to the feeling that these meetings do not in fact register the choice of the medical profession at large. There are many people both within and without the Association who would like again to see a free nomination and election. It should certainly not reproduce the kind of uninformed scramble in which the election took occasionally in earlier times, and under the auspices of the B.M.A. a number of the factors conducing almost to chaos have been eliminated; but it is plain that the intention of the Medical Act of 1886 is not being strictly observed in the present procedure. No one would stand to gain more from a restitution of the importance of the election than the B.M.A. candidates themselves, who would then have the assurance that they are really representing the medical profession as a whole and not any section of it however influential.

PERFORATION OF PEPTIC ULCERS

SINCE immediate operation is by common consent the only treatment to be considered in the presence of acute perforation of a gastric or duodenal ulcer, an estimate of the prognosis must take into account, first, the immediate post-operative mortality; and secondly, the subsequent digestive history of survivors. Within the last three years several surgeons have collected the immediate and remote results of their cases. Taking together figures from the practice of surgeons working in Newcastle,[1] Manchester,[2] New York,[3] and Lyons,[4] we have before us the results obtained in over 500 cases treated according to modern surgical methods under good conditions. The average mortality over the 521 cases reported from four hospitals is 19·8 per cent. The type of operation is not always recorded, but of 277 cases in which simple suture, with or without drainage, was done, 43, or 15·5 per cent., were fatal, whereas in 201 treated by combined suture and immediate gastro-enterostomy the corresponding fatality-rate was 21·4 per cent. This difference appears to favour treatment by simple suture, but is not more than might have arisen by chance and cannot be regarded as significant. That simple suture gives remarkably good results is well known; in the Newcastle figures a series of 63 consecutive cases is recorded with only 3 deaths. On the other hand, in the Hôtel-Dieu in Lyons, where

[1] Gilmour, J., and Saint, J. H.: Brit. Jour. Surg., 1932, xx., 78.
[2] Scotson, F. H.: Brit. Med. Jour., 1933, ii., 680.
[3] Shelley, H. J.: Amer. Jour. Surg., 1932, xv., 277.
[4] Creyssel, J., and de Mourques, J.: Rev. de Chir., 1933, iii., 627.

194 patients received treatment, gastro-enterostomy is almost the routine for perforation; in 25 cases only was simple suture done. Two hundred and forty-five case records come from the hospital practice in Newcastle and Manchester, and include only 30 cases subjected to gastro-enterostomy. Comparison of the results reached at the different centres reveals no consistent advantage of one method over the other. The presence of other important factors makes it difficult, however, to compare results; for instance, the proportion of cases seen within twelve hours of perforation varied between 60 and 80 per cent., and this factor must have an important influence upon the success or otherwise of operation.

In the figures reached by Mr. T. G. ILLTYD JAMES and Mr. N. M. MATHESON elsewhere in this issue the rather higher fatality-rate is probably related to a fairly high incidence of perforations at or near the lesser curvature of the stomach, and also to a higher average age (half of the patients were in the fifth or sixth decades). That the fatality increases with increase of age is evident in the Lyons figures, which show a rate of 55 per cent. for ages over 60. Undoubtedly, however, the factor influencing it most is the length of time elapsing between the occurrence of the perforation and the operation. This has long been recognised and is emphasised by all surgeons. Combining the figures for all cases in the various series mentioned above in which the length of this interval has been recorded, we find that where the operation took place within twelve hours the fatality-rate is 8·1 per cent., whereas after that time it rises to 25·8. Of the 3 deaths in the 63 Newcastle cases 2 were in patients operated on more than twelve hours after perforations. In this particular series, 51 cases were treated by simple suture of the perforation within twelve hours, and among these there was only one death. The four authors agree that perforation is very much commoner in the region of the pylorus and the first part of the duodenum than it is elsewhere. Of 496 perforations whose site is recorded, 82 per cent. occurred in one or other of these sites. (Attempts to differentiate between the proportion in the duodenum and the pylorus are of little value, since at the operation it is often impossible to be certain of the exact position of the pyloric opening.) SELVAGGI,[5] in a recently published paper confirming these figures, records 44 per cent. perforations in the duodenum and 34 per cent. pyloric or juxta-pyloric—that is, a total of 78 per cent. in one or other of these regions. The knowledge that the chances are four to one that the perforation will be at an accessible site should encourage the inexperienced surgeon who is faced with the responsibility of dealing with such a case.

SHELLEY, GILMOUR and SAINT, SCOTSON, and CREYSSEL have all made serious efforts to trace the subsequent histories of patients, and their results tally closely. There has been a prevalent idea among surgeons that once an ulcer has perforated it gives very little further bother to the patient; in fact, that perforation is followed by healing in almost every case. The truth seems to be that somewhere between 20 and 30 per cent. of patients definitely require further treatment; 60 to 70 per cent. are said to have "slight indigestion" only or to be quite free of digestive symptoms. SCOTSON and SHELLEY give over 40 per cent. as symptom-free after suture only, and GILMOUR and SAINT just under 40 per cent. SHELLEY and CREYSSEL, on the other hand, both report 61 per cent. of "excellent results" after gastro-enterostomy. The terms "excellent results" and "slight indigestion" are, however, susceptible to various interpretations. Symptoms dismissed by a surgeon as slight indigestion may involve discomfort to the patient over a term of years and may suggest to a physician the presence of a chronic ulcer. It is doubtful whether there is enough evidence of better end-results after gastro-enterostomy to justify a more protracted and severe operation following such a serious emergency as perforation. Still less would most surgeons favour immediate gastrectomy; nevertheless at some of the most important clinics in central and eastern Europe immediate partial gastrectomy is being performed for perforated ulcer. JUDINE in Moscow (quoted by GILMOUR) reports particularly good results from this procedure with a surprisingly low fatality (6 deaths in 47 cases). His results are a tribute to fine surgical technique, but few would favour such drastic methods for general adoption. It is more likely that the tendency in the future will be towards simple suture with more prolonged after-treatment on modern medical lines.

[5] Selvaggi, G., Ann. ital di Chir., 1933, xii., 41.

MEDICINE AND CRIME

JUSTICES of the peace might profitably study the recent report of the Commissioners of Prisons (Cmd. 4553, 1s. 6d.). Two points made by the medical commissioner, Dr. NORWOOD EAST, deserve the attention of all courts of summary jurisdiction. The public conscience, we believe, would be shocked if it were known that magistrates either sentenced an insane person to imprisonment or passed sentence in any borderline case without taking into consideration the alleged offender's mental condition. Yet the medical commissioner's report indicates that both these practices survive. An old man, for instance, was remanded to prison on a charge of begging: on his reappearance at court the bench sentenced him to seven days' imprisonment although informed by the experienced medical officer of the prison that the man was insane. The medical officer of the prison to which the old man was sent confirmed his colleague's opinion, and took the necessary steps to have the prisoner dealt with as insane. It is apparently a not uncommon practice for magistrates, when convicting an offender and sending him to prison, to ask that his mental condition be kept under observation during the period of his sentence. This course, as Dr. EAST remarks, inevitably, suggests that insane persons may have been sentenced to imprisonment when they ought rather to be dealt with as patients of unsound mind or else that they may have been punished without due regard to the mitigation which their mental

condition might justify. The first point, then, that magistrates should bear in mind is that, where there is any doubt about an accused man's mental state, it is wrong to pass sentence until the doubt has been resolved. A second point is that courts of summary jurisdiction could greatly help the prison medical officer by giving him fuller information. To ask the medical officer to report on a prisoner at the termination of sentence without specifying the reasons for the request is a needless diffusion of the doctor's time. If the clerk of the court furnished a brief note of the facts connected with the offence, the man's previous conduct, his demeanour in court, and any available details of his family and personal history, the task of medical observation would be simplified and expedited, and the report would be the more useful. This common-sense coöperation in the discharge of a public duty (already established in some of the busiest courts) would be equally valuable at whatever stage a medical report is asked for. If, for example, the bench wants guidance because the accused has alleged a loss of memory, that fact ought obviously to be communicated to the medical officer along with the request for a report.

In another interesting passage Dr. NORWOOD EAST comments on misunderstandings about certification under the Mental Deficiency Acts. People interested in welfare and after-care work, it seems, are inclined to criticise doctors for not being more swift to certify in cases of persistent antisocial conduct. He reminds the critics that the certification of mental defectiveness cannot go beyond the statutory definition. In the language of Parliament there must be "a condition of arrested or incomplete development of mind existing before the age of 18 years, whether arising from inherent causes or induced by disease or injury." It is natural enough to argue that persistent delinquency is in itself evidence of mental defect, but the problem is not to be solved by automatic certification. In this connexion the medical commissioner gives three instances where there has been a turnover from misbehaviour to normal conduct. All might easily have been classified as cases of mental deficiency, but they turned out to be due, in one instance, to the mental conflicts of childhood afterwards replaced by harmony and maturity, in another to periodical physiological imbalance subsequently readjusted, in the third to the slowness of development of the patient which was eventually caught up. The turnover to normal conduct can sometimes be dated with reasonable precision; "if the former misbehaviour is due to mental defectiveness, we must assume that a mind whose development has been arrested for many years can suddenly overtake that arrest and grow to normality in a few hours; the assumption is contrary to general experience."

Few will now deny the significance of the mental and psychological aspects of crime. The Persistent Offenders Committee recommended that a medical psychologist should be attached to one or more penal establishments to carry out treatment in selected cases. There is plenty of material in our prisons. The examining board of the Royal Colleges, as Dr. EAST reminds us, has recognised the experience to be gained there. It has lately decided to accept twelve months' appointment as medical officer in one of four large remand prisons as the equivalent of twelve months' mental hospital practice required for the diploma in psychological medicine.

THE ACADEMIC ASSISTANCE COUNCIL[1]

A YEAR ago an Academic Assistance Council, including some of the most famous names in British science, literature, and art, was formed to assist university teachers and investigators "who on grounds of religion, political opinion, or race were unable to carry on their work in their own country." The council has received rather more than £13,000 in subscriptions. It has made maintenance grants to 49 scientists or scholars, has assisted in placing another 90 to whom grants from other sources were available, and has helped 39 others who had some resources of their own to find opportunities of work in universities. This is an excellent record of service, and some of the reports on the work of the exiles show how good is its quality. For instance, one referee says of the work of a physiologist, "I think it is possible that the work is of even wider significance than he at present realises himself. It opens up several subsidiary problems in general metabolism. It may well be revolutionary."

The immediate ground of action was, of course, the revolution in Germany, but the Council has most carefully abstained from taking advantage of temporary or permanent national prejudices, and its assistance has not been confined to German exiles. For that very reason, perhaps, its task is difficult. The intoxicated professor in Mr. H. G. WELLS'S "The New Machiavelli," who maintained that hate and coarse thinking made a much better slogan than the hero's love and fine thinking, was a practical man. The ordinary citizen can be much more easily induced to mark his disapproval of some specific act of cruelty by "foreigners" than to take any very keen interest in so abstract a cause as that of academic freedom. Already the misfortunes of German intellectuals have lost their news value and it would need another Einstein to restore it. The burden must be shouldered by those educated men and women, a small percentage of the nation, but still amounting to many thousands, who realise what the higher education has meant for them and what horrors are in store for a world in which the principle of academic freedom has perished. Members of our profession are in no need of this warning, the whole history of our science and art abounds in illustrations. Nobody may be in danger of the fate of Dr. JOHN GEYNES who, in 1559, "was cited before the College for impugning the infallibility of Galen. On his acknowledgment of error, and humble recantation, signed with his own hand, he was received into the College." We no longer have to

[1] The annual report of the Council was issued from its offices in Burlington House, London, W., on May 3rd.

depend on criminals for the possibility of studying human anatomy, it is not even common to hold up experimental physiologists to mob execration. Our bulwark is the existence of a large number of liberally educated people; liberal education as distinct from mere erudition or technical skill, implies academic freedom, unrestricted freedom of intercourse between student and teacher, always provided the student be earnest and the teacher competent. It is because that ideal was held higher in Germany than anywhere else, that its temporary obscuration in Germany is of such importance. English intellectuals have praised, perhaps overpraised, the German universities so zealously, that there is some risk that the man in the street may draw disconcerting conclusions. He has been exhorted to copy German intellectual institutions for more than 50 years. But the Germans have changed their system. If they were so very right once, may they not be right again? Hence the duty of educated persons to support the cause for which the Academic Assistance Council stands is clear. Enlightened self interest as well as humanity show the path.

ANNOTATIONS

A SAFE MILK-SUPPLY

THERE is at the moment a large and growing surplus of milk and, at the request of the Children's Minimum Committee, the Government are prepared to spend £500,000 to assist the provision of a daily milk ration for school-children. The Government also contemplate the spending of £750,000 to improve the milk-supply of the country. Opportunity is thus afforded of an increased consumption of milk, of improving the quality of milk produced, and of securing that the milk supplied shall be safe from disease. A special meeting of the Joint Tuberculosis Council was called on April 20th to discuss the question, the basis of discussion being provided by a memorandum prepared by Prof. G. S. Wilson. It was felt that in the incidence of tuberculosis of bovine origin we are behind other countries, notably the United States of America and Canada, and that the present occasion offered a unique chance for improvement. A resolution was passed welcoming the prospect of an increased milk consumption, but averring that the Government proposal to subsidise a milk ration for school-children should be supported only if the safety of the milk supplied is insured by adequate pasteurisation or boiling. Such an insured safety needs no advocacy. But all familiar with the problems—a greatly enlarged number of medical men and of the public we are glad to think—know the difficulties involved. Referring only to the question of pasteurisation, concerning which distinct differences of opinion prevail, attention must be drawn to the short clear words of Lord Dawson in a letter to the *Times* of Tuesday, reporting the views of the Royal College of Physicians of London on the subject. The College welcomes a daily ration of milk as important for the growth and health of children, affirms as considerable the risk of tuberculosis and other diseases following the consumption of raw milk, and concludes that the risk "could be obviated by the use of milk submitted to low temperature pasteurisation as defined in the official order," while pointing out that such pasteurisation does not materially alter the nutritive value. In this issue of THE LANCET an inquiry made by Mr. E. J. Pullinger, of the research institute of animal pathology of the Royal Veterinary College, gives the results of an investigation made to obtain further information into the extent to which milk on the market is contaminated with the organisms of tuberculosis and contagious bovine abortion. His report describes the methods adopted for testing and gives the arguments for arriving at valuable conclusions, one of which may be quoted in this connexion. It runs: Samples from 63 3000-gallon rail tanks were examined; all were contaminated with living tubercle bacilli and 53 with *Br. abortus*. In the corresponding milk samples after low temperature pasteurisation neither organism had survived.

FRENCH VIEWS ON RHEUMATISM

SINCE the last congress of the International League against Rheumatism, held in Paris in 1932, the French section of the League has greatly developed its organisation and has now produced a *Revue du Rhumatisme*. It is proposed to supplement the international *Acta Rheumatologica* by publishing periodically a selection from the large amount of material that is appearing month by month, particularly in France. The main objective of this review will be to issue well-considered and authoritative monographs on the various problems connected with the rheumatic diseases. We are glad to note that the work of rheumatologists in other countries, such as America, Germany, Sweden, and England, is given ample notice. Not only medical and therapeutic but social problems fall within its scope. Rheumatic disease has, in France also, a serious bearing on industrial welfare, and has even become an economic question. An interesting example of the medical-social activity that has sprung into existence in France in regard to crippling rheumatism is the Entr'aide des Rheumatisants, which has its headquarters in the Hôtel-Dieu. This was founded three years ago by a small group of voluntary workers, and has for its object to relieve the large numbers of bedridden and often destitute rheumatic persons "who are not seen because they cannot go out." The Entr'aide endeavours to discover their whereabouts, to provide a cure or at least some alleviation, to assist them financially as needed, and to obtain for them light work if possible and better conditions. The ultimate provision of special hospitals or homes is kept in view. Much can no doubt be done by governments, as in Sweden, to secure for the many sufferers from rheumatism the necessary medical and social services, at all stages of this long-drawn-out illness, but there is still much scope for personal and voluntary service in many directions, especially in crowded centres.

Four numbers of the new *Revue* have now appeared under the direction of various members of the French committee—the first by Prof. Besançon, chairman, with Dr. M.-P. Weil, of the committee, the second by Prof. Marcel Labbé, and the third by Prof. Etienne of Nancy. Besançon and Weil contribute a timely introduction to the pathology of the joints, in which the existing state of knowledge is impartially summarised and many moot points are discussed, such as the nutrition of articular cartilage. In another section

the same writers present an interesting historical summary, showing the evolution of ideas on the nature of rheumatism. They are obliged to conclude that in spite of enormous efforts medical knowledge is scarcely yet at the beginning of the scientific phase, and that even clinical observation is wanting in precision and clarity. The long succession of medical writers and teachers have added fresh names to a complicated nomenclature more often than fresh knowledge. Although Hippocrates appears to have distinguished the arthritides from rheumatism, and rheumatism from gout, these early gains were lost in succeeding centuries. Sydenham in his time clearly defined gout, and like Cullen nearly a century later, returning to Hippocrates, recognised the independence of chronic articular rheumatism. These conceptions passing through many minds in the nineteenth century led on to the differentiation of rheumatoid and osteo-arthritis, which under various synonyms now rules in most countries. This cardinal distinction was emphasised by the British Ministry of Health in 1924. Besançon and Weil reflect the opinion of the French School in distinguishing between the infective arthritides and rheumatism, and regard rheumatic fever as a specific disease. Of rheumatoid arthritis the cause at present escapes all inquirers, but many factors probably operate and the influence of cold and damp is undeniable in predisposed persons.

Since the problem of causation is still unsolved, treatment however successful and approved by experience must still be called empirical. Iodine, sulphur, physical treatment, and waters hold the ground, the two last being, in the view of the French committee, the basis of the treatment of chronic rheumatism. Following Pemberton they favour the hypothesis that these agencies modify the circulation and nutrition through the sympathetic system. Opotherapy has its place in the arthritis of women and chrysotherapy with preparations of gold has a probable value on the analogy of its good results in tuberculosis. According to a prevalent French view, to which good observers in other countries are inclined, some forms of rheumatoid arthritis are at all events para-tuberculous.

The new reviews, issued under the auspices of acknowledged leaders in the medical profession in France, should help to increase the clarity and precision of statement for which in the scientific field that country is distinguished.

ANÆSTHESIA IN URINARY SURGERY

THE diversity of opinion on the best method of anæsthesia for cystoscopy was a feature of the discussion on anæsthesia in urinary surgery, held at the Royal Society of Medicine on April 26th. Dr. H. W. Featherstone's opening address covered a wide field, and included in a critical survey all the drugs and methods commonly used. For cystoscopy he himself preferred some form of local anæsthesia and in this he was warmly supported by some of the succeeding speakers, the agent especially favoured being cocaine in 0·5 per cent. solution with 0·5 per cent. bicarbonate of soda. It was maintained by some that novocain was useless in the urethra; others attributed failure with this drug to the use of too weak solutions, the introduction of the endoscope too soon after the injection of the solution, or the Trendelenburg position which stretched parts that should be relaxed. In direct opposition to advocates of local measures was Prof. A. C. Pannett, the second speaker, who expressed a horror of carrying out endoscopy except under general anæsthesia, preferably gas-and-oxygen. Those who differed from him took the attitude that general anæsthesia was impossible in busy urological out-patient departments where very many cystoscopies had to be performed from considerations both of money and of time. Moreover, unless gas and oxygen for this purpose was given with the greatest skill the patient's straining tended to force the endoscope out, and moreover the view was liable to be obscured by congestion. A sudden cough or movement on the patient's part might bump the instrument against the surgeon's eye; surgeons did not often realise, said one speaker, what they owed to anæsthetists in immunity from black eyes after cystoscopy. With regard to pre-medication, several speakers pointed out how easily this practice might interfere with the value of the inspection by delaying or preventing efflux from the ureters. For minor procedures, including cystoscopy, the use of a small dose of a local anæsthetic inserted intrathecally at a low interspace had many advocates among those who had tried the method in out-patient practice with satisfactory results. An injection of 2 c.cm. of a 1 in 200 percaine solution, with the patient sitting up, had given, it was said, excellent results.

An alternative suggested was percaine in 1 in 500 solution as a local analgesic in the urethra for cystoscopy. If a few minutes were allowed to elapse after injection, and some of the solution was massaged into the posterior urethra, excellent analgesia was said to be obtained. The value of small intrathecal injection low in the spinal column before washing out the bladder had been found of especial value in acute cystitis affecting old women.

With regard to prostatectomy the preponderance of opinion was in favour of spinal analgesia with or without a basal narcotic, though here too there were advocates of gas-and-oxygen assisted by a basal narcotic, or with ether added as necessary. One authority disliked spinal injection and relied on local injection of 0·5 per cent. novocain into four points of the rectus sheath in order to secure the necessary relaxation. Most of those who alluded to the question preferred spinal to other methods for the removal of tuberculous kidney; and all seemed agreed on the need for complete insensibility of the tuberculous bladder when this was being examined.

AMENITIES AT A L.C.C. HOSPITAL

Lord Snell's first official act as newly elected chairman of the London County Council was to open last Friday a new reception block at St. Giles' Hospital, Camberwell. This hospital was one of those appropriated by the Council three years ago and, as was indicated to the guests at the opening ceremony, this appropriation has facilitated the admission of patients other than poor-law patients—of persons, that is, in the category of what may be termed the lower paid wage-earners and their families. Secondly municipal patients may, if suitable, be admitted on the certificate of their own attendant medical practitioner, and finally any urgent case is admitted at the medical superintendent's discretion. These new aims have introduced a very different atmosphere into the hospital of St. Giles and have required the provision of a reception block with all the facilities usual in a voluntary hospital. The upper floor of the new building provides quarters for a senior and four assistant medical officers; the ground floor is given up entirely to out-patients including antenatal cases; there is a theatre for minor operations and a new dispensary which will serve both out-patients and district medical work. A new and attractive entrance,

with a porter's room adjoining, emphasises the attempt to mollify the first contact of illness to the sick poor of the neighbourhood. Mr. Somerville Hastings who, as chairman of the L.C.C. hospitals and medical services committee, supported Lord Snell, said it was his task to make patients comfortable and happy during their stay in hospital. Illness anyhow was an unpleasant time; in the past a standard had been set by the voluntary hospitals, but these, short of funds as they always were, had always put essentials first. Comfort was to be the note of the developing L.C.C. hospitals; at Camberwell, Lord Snell added, other amenities were to come—lifts, automatic house telephones, and cold storage were the next items contemplated. The honours of the occasion went easily to the nurses to whom each several speaker addressed his attention; the deputy-chairman of the Council remarked that any nurse was happy to be in so progressive a service, one in which merit surely led to promotion. The ideals so freely set out on this occasion will, if realised, provide Camberwell with a very agreeable hospital of its own.

THE OLDEST MEDICAL SYSTEM[1]

How far does medicine, as it develops, reflect the social conditions of a country would be a difficult question enough to answer in regard to our own country, where back history can be definitely ascertained and where dates can be put against the various advances in medicine corresponding with, for example, the general scientific progress of the world, the relations between our own and continental schools of thought, and the simultaneous reorganisation in the western world of ideals and performances following upon fundamental discoveries. Even so, to trace in any definite way connexions between effective legislation and social behaviour would be an elaborate task and the conclusions arrived at would frequently be diverse in the minds of many thinkers. But when the question is placed before the reader in connexion with the medicine of China, of which contemporary records exist from nearly 3000 B.C., he would be bold, it might be thought, who should attempt to trace the connexions between Chinese medicine and Chinese civilisation, so vast is that country, so old are its systems, and so various are the races which, by interpenetration and conquest, have fused themselves into what is termed the Chinese nation. Still in his small book Dr. Morse provides material enabling us to arrive at certain conclusions which point to the extraordinary fact that Chinese medicine for some 4500 years of its long drawn-out history remained the same in its conceptions, and was throughout infused with its original tenets of natural philosophy. As Dr. Morse says, after what has clearly been patient and learned investigation of all the available sources, Chinese medicine continued until comparatively recent times to rely on an unassailable cosmic theory, a rigid inelastic system entirely lacking in the quickening influences of a critical open-minded test method. The principles and practices of Chinese medicine are founded on their conception of cosmology. Theories and beliefs over three thousand years old constitute the basis for some of their most important diagnostic and therapeutic customs and practices to-day. In the bulky chronicle of the national medicine written some two years ago by Dr. Kimmin Wong, of Hong-Kong, and Dr. Wu Lien Teh, well known as a director of the Manchurian Plague Prevention Service and of the Chinese Quarantine Service,[2] will be found page after page of detailed information, much of which completes the story, whose headings are clearly set out by Dr. Morse. Until about 1000 B.C. beliefs in demons and mystical attributions to plants was codified into some sort of therapeutic scheme, when there arrived what are known as the Yin Yang principles, and the doctrine of the five elements. Dr. Morse shows that the underlying ethics of Chinese medical practice are still based on the notion of the Yin Yang, and sets out the theories or what may be called the mental mechanism of this scheme of duality. These chapters must be read to understand what follows and to gain some insight into the systems of anatomy and physiology which have prevailed in the country from prehistoric times until quite recently. Indeed, one would gather from Dr. Morse that throughout China generally, as far as the native practitioners are concerned, little advance has yet occurred. But the sadness of this view is relieved by a promise of better things. However local and sporadic the influences of scientific medicine in China may as yet be, there has been a distinct advance in the medicine of China as the result of comparatively recent English and American influences. The medical science of China will not be static for ever in the thraldom of past superstitions, and when modern learning becomes more diffused it would seem impossible that a nation, in whose philosophy so much that is fine and delicate can be observed, should not become prominent in the pursuit of medicine. Dr. Morse has written a valuable guide-book, which Messrs. H. K. Lewis and Co. are now prepared to distribute.

THE SCOPE OF PSYCHOTHERAPY

THE Institute of Medical Psychology has published its first annual report[3] since moving into a larger and more suitable building in Malet-place. This report shows a conspicuous increase—about 50 per cent.—in the number of "patient-hours" of treatment given. For several months in the current year the Institute has again had to decline to accept further patients for treatment until it has worked through the list of those already interviewed and waiting. This state of affairs is readily understood by anyone who has charge of a hospital out-patient department where the difficulty in obtaining adequate psychotherapy for the patients who require this is universal. In those hospitals to which a part-time group of psychologists is attached the demands made upon this department are usually excessive, and even when only those patients most likely to benefit are accepted for treatment the waiting-list is long.

This report shows at least one way in which further experience should lead to some relief of the congestion. It shows that out of a total of 270 patients treated, only 58—or less than one-quarter—were regarded by the psychotherapists through whose hands they had passed as being either cured or much improved. When account is taken of the laborious nature of the treatment involved and of the claim that is made for it as being the only method that holds out a reasonable hope of cure or of satisfactory improvement, it is clear from these figures that a very large number of patients have not yielded the results which alone can justify the use of these methods of treatment. This is seen to be true of the majority of obsessional

[1] Chinese Medicine. By William R. Morse, M.D., LL.D. Paul B. Hoeber, Inc., New York (Clio Medica Series). London: H. K. Lewis and Co. 1934. Pp. 185. 7s.

[2] THE LANCET, 1932, ii., 1337.

[3] A copy of this report will be sent to anyone interested by the general secretary of the Institute, Malet-place, London, W.C.1.

states, paranoid states, and sexual perversions. The low percentage of "cured" also illustrates the fallacy of referring to adults as cases of "early nervous disease"; in the class of patient for whom psychotherapy can claim its best results (the anxiety states) it is well recognised that the problems involved are usually connected with psychological disturbances early in the patient's life, and not at all recent in relation to the appearance of symptoms requiring treatment. In the children's department are to be found the only cases to which the term early can legitimately be applied, and the work of this department, which has been a continuously growing part of the Institute since its foundation as the Tavistock Clinic, is probably providing the most valuable results.

An institute which hopes to rank on a par with hospitals providing other forms of treatment must be willing to give as much attention to diagnosis as to treatment, and to recognise that a flair for the sympathetic handling of patients is not always combined in one and the same person with the ability and the experience that are necessary for competent diagnosis. It is possible that a more critical weeding out of cases which experience has shown to be unsuitable would do more towards providing useful results than a mere extension of the facilities for the treatment of a larger number of patients of all types. In the meanwhile the Institute is making an increasingly valuable contribution to the problem of providing treatment for the mentally sick, and is an outstanding example of the success which rewards initiative and zeal even in the face of persistent financial difficulties.

A PRESENTATION TO SIR WILLIAM HODGSON

ON Sunday week, May 13th, on the occasion of his eightieth birthday, medical practitioners in the County Palatine of Chester will present Sir William Hodgson with a dedicatory volume entitled "Fasciculus Castriensis." It is an octavo volume of 300 or more pages, containing a brief biographical note of himself and more than 60 articles on clinical and other medical subjects written by practitioners in the county. There is also a statement of the clinical facilities offered by all the local health authorities in the county. The presentation copy will be bound in blue morocco, and will bear the arms of Cheshire and the badge of Æsculapius, while a few days later the volume, bound in blue cloth, will be distributed to all members of the Cheshire panel and will be then put on sale. Sir William Hodgson is chairman of the local medical and panel committee and of the county council, in which he has always been a champion of the general practitioner's status; he is still a practising member of the profession of which he is so distinguished a member.

A QUESTION OF ADVERTISEMENT

THE aim of the National Eye Service organised by the British Medical Association and the Society of Dispensing Opticians is to offer insured persons and their families, and others with family incomes not over £250 per annum, the chance of a consultation with an ophthalmic specialist of their own choice as an alternative to getting their glasses from a prescribing optician or attending a hospital. In many areas the scheme is now in good working order, but it is found to involve the necessity of a certain amount of advertisement, and has been objected to on that ground. In the Southampton area for instance six ophthalmic surgeons have joined the scheme and are willing to examine and prescribe for their patients either at the clinic or at their own consulting-rooms for the modest fee of half a guinea. An advertisement in the local paper announces the fact of the service having been organised, and a card giving names of the surgeons, with times of their attendances at the clinic, has been sent to all practitioners of the area requesting them to display it in their surgeries. It is felt by some that this amount of advertisement is unethical ("not in the best interest of the medical profession" in the words of one communication we have received); but, it may be asked who suffers from it? The general practitioner does not himself do eye work or if, having special experience, he does desire to do it and is qualified by the records of his attainment, he is free to join the scheme. Ophthalmic surgeons who are not on the list because they do not desire to see patients for half a guinea are not affected. Prescribing opticians may certainly be adversely affected, but the belief that opticians ought not to prescribe the glasses that they provide is a fundamental principle of the scheme. The scheme seems to us well calculated to meet the needs of the public and to offer the ophthalmic surgeon a valuable introduction to private practice.

THE SELENIDE TREATMENT OF CANCER

THE treatment of cancer patients who have been rejected by the surgeon and the radiologist is a very formidable problem. Dr. A. T. Todd is one of the few who have attempted to attack it in a systematic manner.[1] and in order to qualify for his treatment at the Bristol Royal Infirmary "every case has to be guaranteed untreatable and to be free of diagnostic doubt." Todd's working hypothesis is that the body reacts to the presence of a neoplasm by a defensive mechanism of which the macrophages constitute the most important part, and that this defensive mechanism can be stimulated by the intravenous injection of certain colloids in carefully adjusted doses and intervals. The first colloid used was a lead selenide preparation called D4S. Of the cases treated with this remedy, he states that "10 per cent. can be claimed as four-year cures," while 50 per cent. of the cases showed a definite prolongation of life, as a rule with comfort. A further development was the combined use of colloids and radiotherapy. For this purpose two new preparations were introduced: a double colloid of sulphur and selenium called 8Se, and a feebly radio-active one made from radium residues and combined with selenium as in the original lead selenide colloid. The second preparation, which is called R.A.S., is but very feebly radio-active, and Todd has convinced himself by experiments on animals that its injection is without danger, no harm being apparent even after a long interval. The manufacture of these colloids has been entrusted to British Drug Houses Limited.

In applying the remedies the general aim is to produce an ionisation of the injected selenium colloid. The treatment begins with an injection of the sulphur-selenium followed by irradiation 48 hours later with X rays. This procedure is repeated weekly for about two months, the doses of the colloid and of the X rays being adjusted as as to produce a reaction. Next comes a course in which the two colloids 8Se and R.A.S. alternate with one another, one injection being given each week; the feebly radio-active R.A.S. is supposed to produce ionisation of the

[1] Brit. Jour. Surg., April, 1934, p. 519.

selenium colloid. If the tumour reacts to this treatment this course of alternation of colloids is continued; if not, a second course of ionisation with X rays is applied three months later. The results Dr. Todd tabulates in two groups. The first comprises 93 cases treated from May, 1931, to September, 1932, and 15 of these are described as "apparent cures;" 10 of these patients are alive more than a year after the beginning of treatment. In addition there are 5 patients still under treatment and 2 of these are alive two and a half years and four years after the treatment commenced. The second more recent group of 62 cases has been treated since September, 1932; and here the results, as Todd himself says, are harder to assess. It contains 3 cases discharged as apparently cured and 9 cases still under treatment but doing well.

All this material is of course open to the obvious criticism that the time is too short to speak of a cure, or even of an "apparent cure"; and it is perhaps unfortunate that Todd should use the latter expression in speaking of his successful cases. But in any other of the diseases which are always fatal in their advanced stages, a form of treatment which in a certain proportion of cases will prolong life, remove pain and discomfort, and restore the patient for a long time to normal life would be thought a considerable achievement. Many of those who have seen the patients in Bristol are satisfied that, considering their hopeless state when they came under treatment, the results are remarkable. Dr. Todd may claim to have shown that cancer even in its most advanced stage is still sometimes amenable to successful treatment—in the sense in which that word is used for other diseases and provided that such treatment is applied with skill and devotion.

AMIDOPYRIN AND AGRANULOCYTOSIS

A FORTNIGHT ago we commented on the possible rôle of amidopyrin and the barbiturates in the causation of agranulocytosis. A further group of papers has since come to our notice which support the suggestion that these drugs are sometimes responsible for the condition. Randall[1] describes the case of a woman, aged 25, who developed acute and alarming leucopenia after the use of amidopyrin and barbiturates for simple headache. Hoffman and Butt[2] found that a feature common to 13 out of 14 cases of agranulocytosis was the use of amidopyrin either alone or in conjunction with a barbiturate; they also claim to have produced agranulocytosis in rabbits by the administration of amidopyrin alone. Lastly, Holten, Nielsen, and Transbol[3] in Denmark record a similar relationship between the use of amidopyrin and attacks of agranulocytosis. They describe six cases in which women developed typical agranulocytosis, while in hospital for some other condition, after treatment with amidopyrin, and they believe that agranulocytosis may really be a new disease dating from the introduction of the barbiturates and amidopyrin into therapeutics. During the period 1916–20 an analysis of 34,417 patients treated in a fever hospital in Stockholm shows no death attributable to agranulocytosis; during 1920–25 there were possibly five deaths from this cause, while between 1926 and 1931 as many as 26 cases were recorded. Dr. Holten and his colleagues again lay stress on the fact that there must be certain contributory factors such as personal idiosyncrasy, since in many cases long-continued use of the drugs in question does no harm. It would perhaps be wise, however, in view of the rapidly growing body of evidence that incriminates amidopyrin, not to give this drug unless the leucocyte count is controlled by frequent blood examinations.

[1] Randall, C. L.: Jour. Amer. Med. Assoc., April 7th, 1934, p. 1137.
[2] Hoffman, A. M., Butt, E. M., and Hickey, N. G.: Ibid., April 14th, p. 1213.
[3] Holten, C., Nielsen, H. E., and Transbol, K.: Ugeskrift f. Laeger, Feb. 8th, 1934, p. 155; March 1st, 1934, p. 245.

THE BRITISH ASSOCIATION

THE annual meeting of the British Association for the Advancement of Science is to be held in Aberdeen from Sept. 5th to 12th. It is the third time that the Association has met there. In 1859 the Prince Consort presided and gave the inaugural address. In 1885 Sir Lyon Playfair was president. This year Sir William Hardy was to have presided, and when he died in January Sir James Jeans was appointed to take his place. His presidential address on Sept. 5th is entitled "The New World-Picture of Modern Physics." One of the evening discourses will be a memorial lecture for Sir William Hardy dealing with the preservation of foodstuffs; the other will be given by Prof. W. L. Bragg on the exploration of the mineral world by X rays. It is hoped to arrange an evening symposium on the general relation between science and the community. Many of the presidential addresses will bear on matters related to medicine. In the section of physiology Prof. H. E. Roaf will speak on colour vision; in the section of psychology Dr. Shepherd Dawson will take psychology and social problems for his subject; in the section of anthropology Capt. T. A. Joyce will tell of the origin and use of yerba maté, and in the section of zoology Dr. E. S. Russell will give an address on the study of behaviour. Other sectional addresses deal with physical methods in chemistry, the future of railway transport, sources of cheap electric power, and rural industry.

Aberdeen offers many attractions to the student. It is the centre of a great agricultural district and of an important fishing industry, while paper-making, granite working, and other industries are well established. Cultural and commercial interests in the city are, it is said, so happily balanced as to justify its ancient motto "Bon Accord." The Rowett Research Institute is easily reached. Preceding the meeting is an international geological excursion ending at Edinburgh on Sept. 3rd, when the Geological Society of Edinburgh celebrates its centenary. The detailed programme will not be issued until August, but those who intend to be present should notify the secretary of the British Association, Burlington House, London, W.1.

WE offer cordial congratulations to Dr. Helen Mackay, whose work on iron and other deficiencies in infancy and childhood is familiar to our readers, on being the first woman elected F.R.C.P. Lond.

NATIONAL INSTITUTE OF INDUSTRIAL PSYCHOLOGY. Two public lectures will be given on May 7th and May 14th by Mr. F. C. Bartlett, F.R.S., professor of experimental psychology in the university of Cambridge, on recent researches into the effects of noise on work. Lord Horder will take the chair at the first lecture. Mr. J. W. Cox, D.Sc., research Fellow of the Institute, will lecture on May 28th on recent researches into the nature of manual skill. All the lectures will be given at 5.30 in the London School of Hygiene and Tropical Medicine, Keppel-street, W.C. They have been arranged under the Heath Clark bequest.

PROGNOSIS

A Series of Signed Articles contributed by invitation

V.—PROGNOSIS IN ECZEMA

A CYNIC has said that dermatologists are fortunate in that their patients never die and never get well. While skin disease in fact confers no immortality on its victim, there is the germ of a current belief in this quip. The popular impression that skin disease is exceptional in its resistance to treatment is contrary to the facts. That it is still held by many is partly explained by the nature of the lesion, which is essentially objective and therefore constantly under the view of the patient who is only satisfied when every trace of the eruption has been removed. Further, most forms of skin disease do not threaten life; therefore a person who may submit with fortitude to some considerable medical or surgical disability will be impatient with a disorder which does not greatly disturb his general health. He is worried in eczema by the itching or by the degree of the eruption which sometimes prevents him from following his occupation. His disease is his constant enemy; he resents its presence; he is eager to be rid of it and to be rid of it quickly.

It is therefore not surprising that the patient with eczema desires to be assured that he will be cured and seeks to know when he will be cured. The word "cure" is perhaps unfortunate because it connotes two entirely different things. We can cure syphilis and we can cure scabies because they are parasitic diseases the nature of which is understood. In eczema the eruption is merely a symptom; there are probably few forms of eczema in which the patient cannot be relieved, but in none of them is it possible to foretell what will happen later. The word cure therefore as applied to eczema can be used only in a limited sense.

Infants.—Eczema is met with at all ages. It is a common infantile complaint occurring especially between the second and the eighth month, rarely persisting after the second year. The prognosis in infantile eczema can thus be assessed with some degree of mathematical precision. There are other factors which bear upon the outlook: infantile eczema often reacts very favourably to treatment, such as a simple boric-zinc ointment or the more drastic crude coal-tar paste. Where either remedy proves suitable it is often remarkable how quickly even severe forms of the disease subside, and subside completely.

It is very important to differentiate between genuine infantile eczema, of which the prognosis is favourable as has been said, and an allergic eruption classified under the rather clumsy label of the eczema-asthma-prurigo complex with a similar propensity to develop early in life. This spurious eczema often mimics the genuine eruption, but sooner or later indicates its preference for the flexures, the bends of the arms and knees, the neck, and the skin behind the ears. The disease is often hereditary and more than one member of the family may be affected. A family history of asthma or hay-fever is also common, and when the complex is fully developed the skin eruption may alternate with attacks of asthma. It was formerly thought that nothing influenced the course of this chronic and persistent condition, but since the introduction of X ray therapy and intradermal vaccine therapy the prospects of improvement at any rate have become better.

Adults.—In adults eczema may present itself in an acute or in a chronic form. This is the common terminology; it is more useful, however, to speak of extensive and localised or limited eczema, for the acute and chronic phases may both be present at the same time in different regions of the skin. Local patches of eczema, for example on the legs, often respond readily if and when X ray treatment is available and suitable; otherwise they may persist for weeks or in exceptional cases for months. The extensive forms, especially those with an abrupt onset, as a rule pursue a relatively short course, provided the patient is willing to enter a hospital or nursing institution. When they are treated at home the improvement is much slower and much less satisfactory. Where the eruption consists wholly or principally of scattered œdematous papulo-vesicles, progress is slower than where confluent sheets of eczema are present.

With the object of obtaining more exact data I have reviewed a series of 50 cases of eczema, mostly of the severe or extensive type, admitted to my wards at Middlesex Hospital. The duration of in-patient treatment averaged at 5·4 weeks, the longest stay in hospital being 15·5 weeks and the shortest 1 week. This series illustrates the advantages of institutional treatment. Thus two patients with eczema of two years' duration were relieved in 4 and 3 weeks respectively, another of 18 months' duration in 3·5 weeks, and another of 9 months' duration in 4 weeks. It is not implied that the "cure" was complete in any but a very few of the 50 patients cited above. They were nevertheless sufficiently relieved to allow them to resume their occupations while attending the out-patients' department. In private practice rather more is demanded, and it may be estimated that treatment, even if institutional, will be increased to one and a half or even twice as many weeks.

The prognosis therefore in eczema, so far as it applies to any specific attack, is distinctly favourable. For the reason given above it is impossible to foretell what may happen in the future, except that a patient who has once developed eczema is liable to subsequent attacks.

UNCOMMON VARIETIES

Special reference should be made to other forms of eczema which have qualities distinguishing them from the common varieties of the disease.

Eczema of the legs associated with varicose veins is relatively often observed. The special technique originated by Mr. A. Dickson Wright has done a great deal to remove from the category of chronic complaints the forms associated with ulceration. Where the eczema is uncomplicated, however, the use of an elastoplast bandage is often followed by an aggravation of the eruption. Nevertheless it is obvious that the varicose veins, if neglected, continue to exercise a prejudicial effect on the skin condition. Where the veins are suitable for injection, or, failing this, where a supporting crêpe bandage is used, the prospect and degree of improvement is much better.

Dysidrotic eczema, where numerous small vesicles, often with pronounced itching, appear on the fingers, hands, and feet, is a seasonal and recurring eruption observed during the warmer periods of the year. Most of these cases are, in my view, eczematous, but a proportion are due to a ringworm or monilia infection; here the prognosis is much more favourable because the causal organism is susceptible to suitable parasiticides.

Mention should also be made of the *seborrhœic group* of dermatoses which includes dry psoriasiform lesions; sheets of red moist "eczema" of the axillæ, groins, and interdigital cleft and behind the ears; and an acute weeping or œdematous process more commonly found on the scalp, face, neck, and the thin skin over the bends of the joints. Where the condition is eczematised it follows the course of an acute eczema, with, however, a greater tendency to relapse. The form characterised by red moist areas of the groins and axillæ is often extremely rebellious to treatment. In this variety of seborrhœa there is a special predisposition to secondary invasion by staphylococci and streptococci; the resulting boils or impetigo-like lesions when present complicate and interfere with the normal process of treatment, and in this way prolong the duration of the eczema beyond its expected limits.

OCCUPATIONAL ECZEMA

Occupational eczema, in spite of the attention it has received in recent times, continues to be a controversial subject. Certain trades and occupations seem especially to predispose to eczema, or trade dermatitis as it is sometimes called. The eruption, which in form exactly resembles eczema, occurs on the parts of the body exposed to the irritant, and is met with in bakers, grocers, hairdressers, french polishers, and in other groups of workers. Prosser White, who gave special attention to these conditions, stated that if the patient discontinues the occupation for a time, he can safely resume it if the eruption is completely cured, but this is not the opinion generally held. In some cases the eruption clears up immediately contact with the irritant is discontinued, while in others it persists, often for months or years. The question of compensation involves a psychological factor and possibly causes the patient consciously or unconsciously to keep up the eczematous eruption by scratching or in other ways. Patients who suffer from seborrhœic disorders or from hyperidrosis seem especially prone to develop conditions of this sort and in them the prognosis is especially bad. The large question of sensitisation has also to be taken into account. In a person once sensitised his special reaction can be provoked by further contact with the offending agent, and therefore it is unlikely, in spite of the authority quoted above, that he will ever be able to resume an occupation in which the, to him, harmful substance is used.

CONCLUSION

Finally, it may be said that in the great majority, indeed in nearly all, of the different forms of eczema it is possible to cause the eruption to disappear, provided the patient is willing and able to give the necessary time and attention to the form of treatment indicated. The determination to get well which implies the subordination of a measured proportion of the day to the tedious details of treatment may be the determining factor; lack of such self-discipline invariably prejudices the favourable result.

HENRY MACCORMAC, C.B.E., M.D., F.R.C.P.
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WORCESTER MATERNITY DEPARTMENT.—Mrs. Stanley Baldwin recently opened a new maternity department at Worcester Royal Infirmary. It is a compact unit composed of quarters made available by the recent extensions. The old theatre has been converted into a six-bed ward to which a labour ward, a nursery, and other accessories have been attached.

PUBLIC HEALTH

Unhealthy Office Accommodation

WOMEN clerks and secretaries met at Livingstone Hall on April 17th to consider the question of hygienic office accommodation. It will be remembered that the Offices Regulations Bill failed to obtain a second reading in the House of Commons last month. Dr. W. J. O'Donovan, M.P., who addressed the meeting, said it was necessary to convince not only Members of Parliament but also the older clerical workers who had become inured to bad conditions through long experience. In thousands of cases houses which had been built for dwellings had been converted for use as offices although quite unsuitable for the purpose. Mr. Arthur Greenwood, speaking as an ex-Minister of Health, said that the existing Acts were quite inadequate to ensure healthy conditions of office life. Factory workers had secured protection through collective action; unfortunately office workers in the past had been too respectable to agitate. A resolution was carried urging the need of legislation to secure a minimum health standard for office workers.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED APRIL 21ST, 1934

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 3 (last week 3); scarlet fever, 2781; diphtheria, 1060; enteric fever, 22; acute pneumonia (primary or influenzal), 1464; puerperal fever, 66; puerperal pyrexia, 149; cerebro-spinal fever, 34; acute poliomyelitis, 6; acute polio-encephalitis, 2; encephalitis lethargica, 11; continued fever, 1 (Willesden); dysentery, 5; ophthalmia neonatorum, 97. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on April 30th–May 1st was as follows: Small-pox, 11 under treatment, 0 under observation (last week 11 and 1 respectively); scarlet fever, 1627; diphtheria, 1654; measles, 3171 (last week 3420); whooping-cough, 298; puerperal fever, 31 mothers (plus 9 babies); encephalitis lethargica, 259; poliomyelitis, 3; "other diseases," 150. At St. Margaret's Hospital there were 18 babies (plus 7 mothers) with ophthalmia neonatorum.

Deaths.—In 118 great towns, including London, there was no death from small-pox or enteric fever, 119 (54) from measles, 9 (2) from scarlet fever, 48 (9) from whooping-cough, 40 (10) from diphtheria, 37 (13) from diarrhœa and enteritis under two years, and 79 (16) from influenza. The figures in parentheses are those for London itself.

Measles is now definitely diminishing; this week there were 9 fatal cases in Liverpool, 7 in West Ham, 6 each in Newcastle-on-Tyne and Salford, 4 in Barnsley. Whooping-cough caused 9 deaths in Liverpool, no more than 2 in any other great town except London. Fatal cases of influenza were confined chiefly to the northern area: Liverpool reported 7 deaths, Manchester 6, Sheffield 3—Birmingham also had 7 deaths. Four fatal cases of diphtheria occurred at Manchester, 3 each at Leeds and Middlesbrough.

The number of stillbirths notified during the week was 278 (corresponding to a rate of 39 per 1000 total births), including 49 in London.

PROVISIONAL DEATH-RATES FOR 1933

Provisional death-rates per million population for England and Wales during the year 1933 are now available as follows:—

	Males.	Females.	Persons.
Respiratory tuberculosis ..	819	571	690
Other tuberculosis	148	121	134
Cancer	1490	1559	1526

The maternal mortality (provisional) based on deaths primarily classed to puerperal conditions is as follows:—

Puerperal sepsis per 1000 live births 1·83; per 1000 total births, 1·75.

Other accidents and diseases of pregnancy and parturition per 1000 live births, 2·68; per 1000 total births, 2·57.

SPECIAL ARTICLES

THE INCIDENCE OF TUBERCLE BACILLI AND BRUCELLA ABORTUS IN MILK

By E. J. Pullinger, B.V.Sc. S. Africa, M.R.C.V.S., Dipl. Bact. Lond.

RESEARCH INSTITUTE IN ANIMAL PATHOLOGY, ROYAL VETERINARY COLLEGE, LONDON

The main object of this investigation has been to obtain further information of the extent to which milk from tuberculin-tested herds and ordinary non-graded raw milk are contaminated with the organisms of tuberculosis and contagious bovine abortion. The survey of milk-supplies for *Br. abortus* has of recent years received impetus from the suggestion that the consumption of milk contaminated with this organism may produce undulant fever in human beings. The value of "low temperature" or "holder" pasteurisation for destroying bacteria of these groups has also been studied. Milk samples were obtained through the depôts of United Dairies (London) Ltd., through the kind coöperation of Mr. E. B. Anderson, M.Sc. One of the findings has been that, when ordinary raw milk is mixed in large quantities, living tubercle bacilli can be found in it almost constantly. This has stimulated interest in other questions, such as the reasons for such contamination and its extent. In the same connexion, milks from herds in two different parts of the country have been compared. Finally, the work has given an opportunity for studying various technical points connected with the recognition of tubercle bacilli and *Br. abortus* in milk.

The following classes of milk have been examined :—

1. MIXED MILK FROM INDIVIDUAL TUBERCULIN-TESTED HERDS

(*a*) *Certified milk.*—Pint samples, no doubt representing the mixed product from a few cows only, were tested.

(*b*) *Grade A tuberculin-tested milk.*—Samples were taken by trained laboratory personnel, who were daily engaged in such work. Two ounces of milk from each churn, delivered by a producer on the day of sampling, were mixed; and, after shaking, a half pint of the mixture was despatched to the Institute. Separate dippers were used for the milk of each herd.

2. MIXED MILK FROM ORDINARY HERDS

(*a*) *Rail tank milk.*—Pint samples of raw milk were taken from the inlet pipe of the holding chamber of the pasteurising plant, while this was being filled from a 3000-gallon rail tank containing the supplies of a number of producers. A corresponding pasteurised sample was taken from the outlet pipe of the holder 30 to 45 minutes after the collection of the raw sample. Samples from 7 pasteurising depôts were examined.

(*b*) *Raw mixed milk from single farms.*—An examination was made of the milk-supplies from two districts in England—viz., Cheshire (mostly during the spring of 1933) and Somerset (during the winter of 1933–34). Samples were collected in the same way as from Grade A tuberculin-tested herds. One hundred c.cm. amounts were bottled, packed in ice, and despatched to the Institute.

Examination for Tubercle Bacilli

Although much has been written about the presence of tubercle bacilli in market milk, it is not easy to estimate the percentages of the various classes of milk likely to contain this organism. Moreover, the figures available (Table I.) are difficult to evaluate owing to the different techniques used.

The literature referring to the survival of tubercle bacilli after pasteurisation is extensive but contradictory. It is generally agreed that when a modern pasteurising plant of the pre-heating holder type is worked in an efficient manner, tubercle bacilli are killed. When the plant does not work efficiently, however, some tubercle bacilli may survive pasteurisation. Thus, according to a report to the Manchester corporation (1931), 2 per cent. of pasteurised milks were found to contain living tubercle bacilli. J. Smith (1932) found 2·1 per cent. of 187 milks pasteurised by the holder method were contaminated. In the report (1933) of the Medical Research Council it is recorded that tubercle bacilli survived in 2·8 per cent. of 1243 samples after holder-pasteurisation.

TABLE I

Author.	District.	Class of milk.	Samples.	With tubercle bacilli. (Per cent.)	With *Br. abortus*. (Per cent.)	Milk yielding deposit (c.cm.).*	Guinea-pigs in test.
Wilson and Nutt (1926).	Manchester.	Market.	488	13·0	8·8	1D‡	1 or 2
Savage (1929).	Various counties.	,,	—	0 to 15	—	—	—
Smith (1932)	Aberdeen.	,,	279	10·3	28·3	25	2
Beattie (1932).	Edinburgh.	,,	83	—	34·9	25	2
Rabagliati (1932).	Yorks (W. Riding).	,,	720 527	2·5 3·8	— —	50	2
Wood (1930).	Somerset.	Herd.	—	2·2 to 2·5	—	100	1
Wood (1931).	,,	,,	379	—	1·0	100	1
Locke (1932).	Cheshire.	,,	437	18·0	—	100	2
	Derbyshire.	,,	141	8·5	—		
Rowlands (1933).	N. Wales.	,,	109	2·7	16·5	50	2
M.R.C. Rep. (1933).	Scotland.	,,	1534	10·0	—	50	2
Gaiger and Davies (1931).	—	,,	1218	7·3	—	100	2
Gaiger and Davies (1933*a*).	—	,,	2368	8·9	—	100	2
Gaiger and Davies (1933*b*).	—	,,	200	—	43·5	100	2
M.R.C. Rep. (1933).	Scotland.	Rail tanks.	201	37·5	—	50	2
The Lancet (1933).	London.	,,	18	83·0	—	—	—
M.R.C. Rep. (1933).	Scotland.	T.T.†	714	0·1	—	—	2
C.M.O. Ann. Rep. (1931).	England and Wales.	,,	441 herds	8 samples.	—	—	—

Market milk = Ordinary mixed milk not definitely stated to come from one herd. — = Not stated. * Quantity of milk yielding the deposit injected into each guinea-pig. † Licensed T.T. herds. ‡ 1D = c.cm. of deposit.

TECHNIQUE

In deciding upon the inoculum to be used and period of incubation to be allowed, it had to be remembered that two kinds of organisms were being sought. Two guinea-pigs were used for testing each sample of milk, except with milks of classes 2 (*a*) and 2 (*b*). Apart from this, the same technique was used throughout.

After 1 c.cm. of gravity cream had been removed the milk was well mixed and 90 c.cm. were centrifuged at 2000 revolutions per minute for 30 minutes. The deposit was mixed with the gravity cream previously removed and the mixture was inoculated intramuscularly into one guinea-pig, half the amount being injected into each thigh. When two guinea-pigs were used, 2 c.cm. of gravity cream and the deposit from 180 c.cm. of milk were taken. As a rule, guinea-pigs were autopsied six weeks after inoculation, except with milk of class 2 (*b*) when the animals were allowed to survive four weeks only.

The same guinea-pigs were used both for the tuberculosis and *Br. abortus* tests, since, according to Wilson and Nutt (1926), these two infections can develop coincidentally without the one influencing the other. After material had been taken for the *Br. abortus* examination, the organs were examined for tuberculous lesions, and smears were taken for microscopic examination. Cultures were made from the regional lymphatic glands and spleen. The ground-up material was mixed with an equal volume of 20 per cent. antiformin and loopfuls, seeded on plain egg or broth egg slopes, after intervals of five and eight minutes.

The technique in this investigation can be regarded as severe. The relatively low speed of centrifuging is perhaps open to criticism, but it is probably offset by the inclusion of gravity cream in the inoculum. The work was completed before the recent report (1933) of the Medical Research Council was published, according to which living tubercle bacilli in pasteurised milk would have been missed in 35 out of 57 instances if both guinea-pigs had been killed after four weeks. Reliance, however, was placed upon naked-eye appearance of the organs; whereas in this work cultures were made from the glands.

The strains of mycobacterium isolated were not typed, but none of the cultures showed the rapid growth and other features characteristic of avian and saprophytic forms. This bears out the findings of Wilson and Nutt (1926) and Gaiger and Davies (1933 *c*) that the non-pathogenic acid-fast bacilli common in milk products do not produce a condition in guinea-pigs simulating tuberculosis; and it is contrary to the findings of Albiston in Australia (1930), who recorded that 9·3 per cent. of cases of apparent tuberculosis in guinea-pigs, inoculated with milk, are caused by a saprophytic acid-fast bacillus.

TABLE II

Examination of milk from tuberculin-tested herds for tubercle bacilli and Br. abortus

Class of milk.	Number of herds examined.			Total of samples examined.	T.B.		*Br. abortus.*	
	3 times.	Twice.	Once.		+	−	+	−
Certified ..	11	3	5	44	0	44	28	16
Grade A (T.T.) ..	14	3	9	57	1	56	42	15
Total ..	25	6	14	101	1	100	70	31

TABLE III

Examination of ordinary milk for tubercle bacilli and Br. abortus

Class of milk.	Source.	Samples examined.	T.B.		*Br. abortus.*	
			+	−	+	
Rail tank raw.. ..	7 depôts.	63	63	0	53	10
Rail tank pasteurised	,,	63	0	63	0	63
Herd samples	Cheshire.	105	22	88	39	66
,, ,, ...	Somerset.	104	2	102	20	84

From Tables II. and III. it is seen that:—

1. Of 101 samples from 45 producers, only 1 contained living tubercle bacilli. (*a*) *Certified milk.*—Forty-four samples from 19 producers were tested, the milk from 11 of the herds being examined three times at intervals of 4 months. With one doubtful exception all were free from tubercle bacilli. (*b*) *Grade A (T.T.).*—Fifty-seven samples from 26 producers were tested, milk from 14 of the herds being examined three times at intervals of 4 months. One sample contained living tubercle bacilli.

2. (*a*) *Rail tank milk.*—All 63 samples examined contained living tubercle bacilli. In the corresponding pasteurised samples these organisms were not detected. (*b*) *Raw mixed milk from single farms.*—Out of 105 samples from Cheshire, 22 (21 per cent.) contained living tubercle bacilli. Of 104 samples from Somerset, only 2 (1·9 per cent.) contained this organism.

TUBERCLE BACILLI IN MILK MIXED IN LARGE QUANTITY

The finding that when ordinary farm milk is mixed in sufficiently large quantity, the whole becomes contaminated with tubercle bacilli in detectable numbers is, perhaps, somewhat surprising. It is usually estimated that not more than about 0·2 per cent. of all cows are affected with tuberculosis of the udder and contamination of milk with tubercle bacilli is therefore probably due to this small proportion. Thus there was the possibility that when large volumes of milk were mixed the chance of finding tubercle bacilli, even by the sensitive guinea-pig test, in 90 c.cm. samples taken at random would disappear. The findings to the contrary might be explained in one or both of two ways: (1) that the percentage of cows excreting tuberculous milk is much higher than is generally believed; (2) that one cow with tuberculous lesions in the udder can contaminate a vast bulk of clean milk. While the second explanation appeared the more probable, an investigation was deemed advisable; but before making it, information was desired as to the extent to which the bulk milk itself was contaminated.

Tubercle bacilli in mixed bulk milk.—Starting with 25 c.cm. of rail tank milk, dilutions were made at 1 in 10, 100, and 1000 with milk from a cow which had passed the tuberculin test. The usual technique was adopted, two guinea-pigs being used for each dilution and for a suitable control of the tubercle-free diluent.

Two samples of tank milk from each of three receiving depôts were examined. In one case the undiluted milk alone was positive; in four instances the milk was still infective in the tenfold dilution; and in the remaining instances as far as the hundred-fold dilution.

Extent to which milk from tuberculous udders is infective.—Osterman (1908) found that milk from a tuberculous udder could be diluted 50,000 times and still be infective.

Thanks to the kindness of Mr. D. S. Rabagliati, chief veterinary inspector for the West Riding, milk samples were received from 3 tuberculous udders. These were diluted at 1 in 100, 10,000, and 1 million with tubercle-free milk. In one instance the mixture was infective to the second dilution. In the second and third experiments the mixture was infective to a dilution of 1 in 1 million.

Examination for Brucella Abortus

Some of the results obtained by previous workers, who examined ordinary milk-supplies for *Br. abortus*, are recorded in Table I.

I am unaware of any important series of samples from tuberculin-tested herds which have been examined for *Br. abortus*, although several authors report having found these organisms in such milk. In establishing the presence of the organism in milk, technical methods are important. Thus, Huddleson, Hasley, and Torrey (1927) and Carpenter and Baker (1927) found that the organisms were most numerous in gravity cream; Fitch and Lubbehusen (1926) considered that sediment was the best inoculum, though they thought it safer to use whole milk as well. Karsten (1932), Prôscholdt (1932), and Stockmayer (1933) advocated the use of whole milk for the cultural isolation of brucella. For guinea-pigs, Karsten and Bischoff (1933) recommended a mixture of gravity cream and sediment.

An incubation period of six weeks in the guinea-pig seemed necessary in view of the findings of J. Smith (1932), who in 246 instances noted 43 where agglutinins began to appear four weeks after inoculation with milk containing *Br. abortus*. Ten instances were also noted where agglutinins disappeared before the eighth week. Sheather

(1923) always found agglutinins within six weeks of injecting contaminated milk. Smith used the deposit from 25 c.cm. of milk for each guinea-pig and the tardy formation of agglutinins and their early disappearance may have been due to the very small numbers of brucella inoculated. Thus Hagan (1922), using high dilutions of culture, noted the appearance of agglutinins as early as the second week.

TECHNIQUE

In testing for *Br. abortus*, two methods were used—viz., guinea-pig inoculation and agglutination test of the whey.

(1) At autopsy the spleen was first removed for cultural examination and heart blood was then taken for an agglutination test. The tissue was ground up in 0·5 c.cm. of broth, and the suspension seeded on a plate of 5 per cent. horse serum agar or 5 per cent. potato extract agar which was incubated at 37° C. in a 10 per cent. CO_2 atmosphere. Plates showing no growth after three days were reincubated for four more days. Colonies resembling those of brucella were tested with specific agglutinating serum. Guinea-pig sera were tested with *Br. abortus* suspension (Strain 45), equal in density to Brown's $BaSO_4$ tube No. 5, in dilutions from 1 in 10 to 1 in 10,240. With milks from non-graded herds reliance was placed entirely upon agglutination tests of guinea-pig sera.

(2) Milk whey was prepared by the rennet method and tested for agglutinins in dilutions from 1 in 10 to 1 in 640.

From Tables II. and III. it will be seen that :—

1. Of 101 milk samples from 45 tuberculin-tested herds, 70 were positive. (*a*) *Certified milk.*—Of 44 samples, 28 were positive (24 by the guinea-pig test and 4 by agglutination test of milk whey). (*b*) *Grade A (T.T.).*—Of 57 samples, 42 were positive (40 by the guinea-pig test and 2 by agglutination test of milk whey).

2. (*a*) *Rail tank supplies.*—Of 63 samples of raw milk, 33 were shown to contain living brucella by the guinea-pig test, whilst in 20 others the whey contained agglutinins for these organisms. There were thus 53 positive samples. The pasteurised samples were apparently free from living brucella. (*b*) *Ordinary raw mixed milk from single farms.*—Of 105 samples from Cheshire 39 (37 per cent.) contained living *Br. abortus*, while of 104 samples from Somerset 20 (19·2 per cent.) were positive.

OBSERVATIONS ON THE TESTING OF MILK FOR BR. ABORTUS

During the investigation an opportunity was taken to obtain information on the following points: (1) the relative values of the guinea-pig and whey agglutination tests; (2) the advantage of using two guinea-pigs for each sample; (3) serum agglutinin titres in inoculated guinea-pigs; (4) diagnosis of the disease in guinea-pigs by cultural and serological methods.

TABLE IV

Comparison of guinea-pig and whey agglutination tests

Class of milk.	Samples.	Whey +. G.P. +.	Whey −. G.P. +.	Whey +. G.P. −.
Graded ..	70	47	17	6
Ordinary ..	47	19	8	20
Total ..	117	66	25	26

G.P. = guinea-pig.

(1) Prōscholdt (1932) recorded that in 16·4 per cent. of 4911 instances the whey agglutination test was positive and the inoculation test negative. In the present investigation, out of 117 instances both tests were positive 66 times, the guinea-pig was positive and the whey negative 25 times, and the guinea-pig negative and the whey positive 26 times (Table IV.).

It is seen that with rail tank milks the inoculation test failed, in nearly half the cases, to reveal *Br. abortus*, although this organism was certainly present. On the other hand, with the better-class milk the inoculation test was more sensitive than the whey test.

(2) The use of two guinea-pigs for each sample is intended, (*a*) to reduce the losses from premature deaths, and (*b*) to decrease errors due to failure of guinea-pigs to become infected owing to the small numbers of *Br. abortus* in the sample, or owing to individual guinea-pigs being abnormally resistant to brucella.

(*a*) The proportion of premature deaths amongst guinea-pigs inoculated with the various classes of milk is shown in Table V. The mortality differences between

TABLE V

Premature Deaths of Test Animals

Class of milk inoculated.	Total used. G.P.'s.	Number lost through intercurrent infections.	Percentage losses.
Raw graded	184	12	6·5
Raw rail tank	78	9	11·5
Pasteurised rail tank ..	78	2	2·6
Herd samples	200	17	8·5

the graded and rail tank classes are not significant and may be due to chance alone. The numbers of raw and pasteurised samples compared were not large enough to furnish definite conclusions; but it is quite likely that if larger numbers had been available the differences would have been significant. No significant difference in mortality following the inoculation of herd samples collected during warm or cold weather was noted.

(*b*) Gaiger and Davies (1933 *b*) found brucella infection in a single guinea-pig in 35 out of 87 cases where the animals had survived the full time allotted. J. Smith (1932) killed the first guinea-pig after an incubation period of four weeks and the second after an incubation period of eight weeks, and found in 63 out of 246 cases infection in one guinea-pig alone. In my series out of 66 instances in which two inoculated animals survived the full time, there were eight where a single animal became infected. The use of two guinea-pigs is therefore desirable.

(3) A total of 123 guinea-pigs inoculated with milk containing *Br. abortus* developed agglutinins as follows :—

Serum titres.	1 : 10	1 : 20	1 : 40	1 : 80	>1 : 80
No. of G.P.'s.	2	2	15	11	93

It may be noted that the organism was isolated culturally from both guinea-pigs with titres of 1 in 10. This finding, together with the evidence in the literature dealing with the absence of normal agglutinins for *Br. abortus* in the guinea-pig, supports the view that a titre of 1 in 10 indicates infection. The titres can be classified according to the class of milk inoculated.

Class of milk.	No. of G.P.'s.	Serum titres	
		1 : 10–1 : 80	over 1 : 80
Graded	117	18	99
Ordinary	34	15	19

Blood-sera from nine guinea-pigs, which showed infection following inoculation with Grade A (T.T.) milk, were taken at weekly intervals to find the earliest time at which agglutinins would develop. The result showed that in four guinea-pigs agglutinins were present by the fourteenth day and in the remaining five by the twenty-first day. Agglutinins persisted in all animals to the forty-second day and in the six surviving pigs to the sixty-third day.

(4) To compare the relative values of the blood agglutination test and of culture of guinea-pig tissues for diagnosis, the results should be classified, as follows, according to the grade of milk.

Class of milk.	No. of G.P.'s.	Agg. +. Culture +.	Agg. +. Culture −.	Agg. −. Culture +.
Graded ..	128	112	12	4
Ordinary ..	40	11	26	3

Agg. = agglutination.

It will be seen that in 7 (4·2 per cent.) of 168 cases, cultural methods revealed infection, although there was no appreciable formation of agglutinins. This agrees fairly closely with J. Smith (1932), who found 5 (4 per cent.) out of 123 guinea-pigs, and Gaiger and Davies (1933 *b*) 1 (2·4 per cent.) out of 41 positive by culture but not by the agglutination test. The value of conducting a test of the blood-serum is particularly evident in the case of milks of higher bacterial count.

General Discussion

It has now become an established fact that when milk is bulked in large quantities the whole is contaminated with tubercle bacilli. This is evidently due to the fact that the number of tubercle bacilli excreted in the milk of a single cow is very high. From the point of view of safety this is not of great consequence if the milk is pasteurised, as is the case, for instance, with 95 per cent. of London milk. This work has again clearly demonstrated the efficiency of holder pasteurisation, so that the presence of living tubercle bacilli in pasteurised milk must indicate inefficient heat treatment, or even possibly the addition of raw milk.

The differences in the percentages of tubercle bacilli and *Br. abortus* in milk samples from Cheshire and from Somerset suggests that the number of cows suffering from udder tuberculosis and contagious abortion is relatively higher in Cheshire. Thus according to data by Messer (1932), in 1928 the cow population per 1000 acres was 235 in Cheshire and 138 in Somerset. The herds may therefore be larger in the former county, and the larger the herd the greater is the chance of its containing animals excreting tubercle bacilli and *Br. abortus*. The assumption that herds are larger in Cheshire receives support from the data regarding the quantities of milk supplied by the producers on the day of sampling; thus, for Cheshire, the average daily supply was 56 gallons per herd compared with 21 for Somerset. Another point is that of the 24 herds producing tubercle-contaminated milk, 19 were supplying a gallonage above the average for their district. On the other hand, it is possible that the incidence of these diseases is really higher in Cheshire, since the denser the population the greater the chance of the disease spreading, especially where owing to the climatic conditions it is the custom to house stock for relatively long periods.

Taken at their face value, the figures for milk samples from tuberculin-tested herds suggest that the proportion of tuberculous contamination was as high as in the ordinary milk-supplies from Somerset. This, however, cannot be accepted as the case. The examination of the tuberculin-tested herds was far more exacting. Thus, out of 45 tuberculin-tested herds 25 were examined three times at intervals of four months, whilst six were examined twice and were always found to be uncontaminated, whereas the herds from Somerset were examined once only.

The fact that undulant fever in man is frequently due to the consumption of milk containing *Br. abortus* is now well established. Whilst there are a number of figures available as to the presence of this organism in market milk, no extensive examination of milk from officially tuberculin-tested herds has so far been reported.

The figure (70 per cent.) found for milk from tuberculin-tested herds is much higher than any previously reported for ordinary milk, but this cannot be held to imply that the incidence of contagious abortion is greater in tuberculin-tested herds. It would appear that the quality of the milk under test has not been given the attention it deserves, since the detection of *Br. abortus* in mixed milk presents certain difficulties. It seems that the apparent higher incidence of *Br. abortus* in milk from clean herds is due to its lower content of saprophytic bacteria. It must be accepted, for instance, that every rail tank sample in the series contained these organisms and yet they could only be isolated from half the number of tanks. Fortunately in the case of high count milk containing *Br. abortus*, direct agglutination tests of the whey are of value for diagnosis. The titre accepted as positive in this work was 1 in 10, as in the case of blood-sera from inoculated guinea-pigs. Karsten (1932) and Klimmer (1932) took a whey titre of 1 in 20 in mixed milk as evidence of contamination, but they do not give details of the density of the bacterial suspensions used.

The reason why this organism cannot be easily isolated from milk of high bacterial count is for the moment a matter for speculation. It may be that *Br. abortus* is killed by the acids produced by saprophytic bacteria; but this does not seem to be the explanation, since guinea-pigs inoculated with such milk sometimes showed high specific agglutinin titres, although *Br. abortus* could not be isolated from their tissues. It is more probable that tissue reactions set up in the guinea-pig by the inoculation of large numbers of saprophytes may cause premature death of small numbers of *Br. abortus* inoculated. This is supported by the observation that the specific agglutinin titre of blood of guinea-pigs inoculated with dirty milk is usually lower than that of guinea-pigs inoculated with clean milk.

Summary and Conclusions

1. Out of 101 samples of milk from 45 tuberculin-tested herds, 1 contained tubercle bacilli and 70 *Br. abortus*. With most herds three examinations were carried out at four-monthly intervals.

2. Samples from 63 3000-gallon rail tanks were examined; all were contaminated with living tubercle bacilli and 53 with *Br. abortus*. In the corresponding milk samples after low temperature pasteurisation neither organism had survived.

3. Samples of raw rail tank milk had to be diluted from 10 to 1000 times before tuberculous infectivity for guinea-pigs was lost.

4. Samples of udder milk from cows with tuberculous mastitis could be diluted one million times, with clean milk, without their infectivity for the guinea-pig being destroyed. This explains why rail

tank milk is almost always contaminated with tubercle bacilli.

5. Of milk samples from 105 non-tuberculin-tested herds in Cheshire 22 contained tubercle bacilli and 39 *Br. abortus*. Of 104 samples from similar herds in Somerset 2 contained tubercle bacilli and 20 *Br. abortus*. The significance of these figures is discussed.

6. Premature deaths amongst guinea-pigs inoculated with milk ranged between 6 and 12 per cent., depending on the class of milk under test. Hence, the use of duplicate animals is desirable.

7. Specific agglutinins for *Br. abortus* may appear in the blood of guinea-pigs two to three weeks after inoculation of infected milk and a titre as low as 1 in 10 may be accepted as evidence of infection. Isolation of *Br. abortus* from guinea-pigs, whilst theoretically the more convincing proof of infection, presents technical difficulties, which may render the method less reliable than the demonstration of specific agglutinins.

8. Contamination of clean milk with *Br. abortus* can generally be demonstrated without difficulty by culture from the guinea-pig, or by the demonstration of agglutinins. It is often difficult to demonstrate contamination of dirty milk by the guinea-pig test and in such cases direct agglutination tests of the whey may be used.

9. This work emphasises the need for an extensive campaign for the eradication of tuberculosis and contagious abortion. Eradication schemes must of necessity proceed slowly, and as an immediate palliative efficient pasteurisation of milk can be relied upon to destroy pathogenic organisms found in milk.

I wish to thank Dr. F. C. Minett for advice and criticism during the course of this work. I am also indebted to the directors of the United Dairies Limited for their interest and financial support.

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ROYAL WEST SUSSEX HOSPITAL.—During the past ten years the annual deficit of this hospital has averaged £1581 and in 1933 it was £2962. At the annual meeting held at Chichester on April 3rd, it was decided to raise a loan of £6000 from the bank. A resolution was passed abolishing in-patients and out-patients' letters. The income for the year was £12,932, and the expenditure showed an increase of £2800, of which £1100 was non-recurring.

AUSTRALASIA

(FROM OUR OWN CORRESPONDENT)

SYMPATHETIC RAMISECTION

FOLLOWING the report published in THE LANCET of July 19th, 1930, on the value of ramisection in the treatment of spastic paralysis, an editorial appeared in the *Medical Journal of Australia* suggesting that the matter should be further investigated in Australia. The Royal Australasian College of Surgeons, adopting this suggestion, appointed a subcommittee in Melbourne to make an investigation and appointed as its members: A. E. Coates, J. B. Colquhoun, R. M. Downes, C. W. B. Littlejohn, Fay Maclure, Dr. H. F. Maudsley, Sir Richard Stawell, H. Douglas Stephens, Dr. O. W. Tiegs (coöpted), H. C. Trumble, and Prof. F. Wood-Jones. Dr. Coates acted as secretary and Prof. Wood-Jones as chairman.

This committee have now issued their report (Med. Jour. Australia, March 17th, 1934, p. 384). They considered the anatomical and physiological evidence for the existence of a sympathetic supply to striated muscle, reviewed the experiments of Hunter and Royle, and examined the clinical evidence afforded by cases in which ramisection had been done. They have come to the conclusion that there is no definite evidence of a dual innervation of striated muscle—indeed there is much to the contrary—or of the control of muscle tone by the sympathetic nervous system. On the other hand there is evidence of a relation between the sympathetic nervous system and the fatiguability of muscle. Recent work seems to show that there may be a humoral origin for the phenomenon. The absence of any effect of sympathectomy on tetanised muscle seems to exclude this procedure as being of use for the relief of spasm.

The committee were further of the opinion that the operation of sympathetic ramisection is of no permanent value in the treatment of spastic paralysis and that such improvement as may occur can be attributed to psychic effects, together with an appreciation of a warmer limb due to vascular changes. They hold that there is some danger of ascribing to the operation of ramisection certain improvements in the patient's condition which are really due to ancillary measures, such as tenotomies, massage, and rest in bed. They point out in conclusion, however, that the work of Hunter and Royle has not been for nought, since it has been the stimulus of much research, and that special credit is due to Dr. Royle for his elaboration of the operative technique of surgical interference with the sympathetic nerve-supply.

DEATHS FROM CANCER

The statistics issued by the Commonwealth Government for 1932 show that, whilst the death-rate from all other causes has decreased, that from cancer has increased from 74 per 100,000 in 1911 to 105 per 100,000 in 1932. The actual number of deaths from this cause in 1932 was 6875 (3696 males and 3179 females), the largest number occurring in persons between 65 and 75 years of age. Deaths from tuberculosis numbered 3004, compared with 3726 in 1911.

Figures from New South Wales reveal the same general trend of deaths. In 1931 2439 persons died of cancer (972 per million living), the rate being 4 per cent. above the average of the preceding quinquennial period. In 1932 the deaths numbered 2534, equal

to a rate of 1001 per million living and 6 per cent. above the average of the preceding quinquennial period. The death-rate from this disease has been steadily increasing in the State and the graph shows an almost straight line from 25 per 100,000 in 1883 to 100 in 1932. During the same period the graph for tuberculosis shows a decline in an almost straight line from 143 to 41 per 100,000.

POST-OPERATIVE TETANUS

In January of last year I referred to certain post-operative deaths from tetanus in New South Wales. The Minister for Health subsequently issued a memorandum to all hospitals recommending the preparation of catgut by the iodine method, instead of the biniodide which was in common use; but in spite of these precautions two further deaths from tetanus following operation have been the subject of coroners' inquiries. In the first of these, tetanus bacilli were found in the wound and, as is usual in such cases, the catgut was held responsible although the chain of evidence was far from complete. In the latest case, however, it appears to be beyond question that the catgut should be absolved from any blame—or at anyrate the catgut used in the most recent operation. The patient died from tetanus on Jan. 3rd, 1934, seven days after a laparotomy. She had had two previous operations on the same site. Microscopical search of various tissues failed to reveal tetanus bacilli, and although some organisms resembling them were found they did not reproduce the disease in guinea-pigs. The whole of the jar of catgut, containing 11 spools, used at the operation was subjected to exhaustive tests. These had all been sterilised with iodine by the Bulloch method and were found to be sterile except that from one spool a bacillus of the *subtilis* type was isolated. This was thought to be an air-borne or accidental contamination. The coroner found that there was no doubt that the catgut used was sterile and that infection occurred apart from the operation. During the hearing attention was drawn to the fact that in the recent cases of post-operative tetanus the operations were all abdominal.

The tests of catgut which have been carried out as a result of these deaths seem to indicate that the biniodide method does not give a sterile gut, and that in this respect the iodine method is preferable. The latter has now been adopted almost generally in New South Wales.

IRELAND

(FROM OUR OWN CORRESPONDENT)

THE TEMPORARY ECONOMIES

IN the Senate last week the Minister for Local Government and Public Health announced his acceptance of the Senate's amendment excluding all medical officers from the provisions of the Local Services (Temporary Economies) Bill. It is to be noted that the amendment saves from deductions not only the dispensary medical officers, but also the whole-time medical officers such as county medical officers of health, county hospital surgeons, and the medical officers of mental hospitals.

DEATH OF DR. BRENDAN MACCARTHY

Dr. Brendan MacCarthy, a former medical inspector of the Local Government Board, Ireland, died at his residence at Ballsbridge, Dublin, last week. Educated at Trinity College, Dublin, whence he received his medical qualifications in 1889, MacCarthy was still a young man when he was appointed a medical inspector under the old Local Government Board. He saw service in many districts of Ireland, and was known as a conscientious, capable, and courteous official. His name came prominently before the public in 1901, when he was associated with Dr. William Smyth, of Burtonport, Co. Donegal, in a heroic action associated with Dr. Smyth's death. An outbreak of typhus fever had occurred on Arranmore Island, which lay in Dr. Smyth's district, although several miles from the mainland. It became necessary to transfer some of the patients from the island to the workhouse hospital at Glenties. The local boatmen had such a dread of the fever that none could be persuaded to give their services. MacCarthy and Smyth themselves manned a boat, carried the patients in their own arms, and rowed the boat to the mainland over a stormy and threatening sea. Smyth contracted typhus and died. The Arnott medal was subsequently presented to Brendan MacCarthy for his share in the incident. He retired from the public service some years ago.

BACTERIOLOGY OF CHRONIC RHEUMATISM

At a meeting of the Ulster Medical Society on April 19th, Sir Thomas Houston read a paper on chronic rheumatism, with special relation to the rôle of enterococci. The president, Prof. W. J. Wilson, occupied the chair, and there was a particularly full attendance of members and fellows. The speaker discussed the various classifications of chronic rheumatism which have been brought forward and suggested that in spite of the variety of the clinical types there may be a basal or specific infecting organism. He drew an analogy with tuberculosis, another disease with protean clinical manifestations. In America, he said, various workers had contributed to the long-held view that streptococci and rheumatism are associated. Several types of organism had been incriminated, but he felt it wrong to suppose that a definite clinical entity could have several causal organisms. Recent studies with the bacteriophage carried out by Sir Thomas Houston had supplied a partial explanation, for in the presence of phage the morphological character of organisms, particularly streptococci, changed.

Turning to the rôle of enterococci, he said that in chronic rheumatism these were often found in septic foci—e.g., in the tonsil or urinary tract. An appreciable number of subjects gave a positive agglutination when their serum was tested with one or other type of enterococci. In some of the more acute forms of rheumatoid arthritis he had cultured enterococci from the joint fluid. A final argument was the sensitiveness of patients suffering from chronic rheumatism to enterococcal vaccines. Sir Thomas discussed the manner in which these organisms may be differentiated from all other streptococci, and produced evidence that their character could be made to change so that they might resemble the *Streptococcus viridans*. Such changes were liable to take place when enterococci were artificially infected with phage.

DUKE OF ATHOLL'S FUND.—The distribution of this fund began last week. The first list of beneficiaries contains the names of 116 hospitals and charities in England, Wales, and Northern Ireland; to Scotland a lump sum of £10,000 has been allotted. The total sum distributed amounted to £45,200. In compiling the list the Duke was advised by Lord Moynihan and Major-General Sir Wilfred Beveridge.

MEDICINE AND THE LAW

An Injured Policeman: Gallantry or Contributory Negligence?

IN a case where a police constable had been injured while stopping runaway horses in a crowded street Mr. Justice Finlay had last week to decide whether in such an emergency the ordinary normal man is likely to be impelled towards altruistic gallantry or towards a selfish inaction. It is prima facie negligence to leave horses and carts unattended in the highway if they afterwards bolt and injure people. The owners of the runaway van, however, taking a somewhat rigid view of the legal position, contended that the constable had been guilty of contributory negligence in what he did: he need not, they said, have put himself in jeopardy; he voluntarily assumed the risk. The constable answered that it was his duty to protect life and property. When he saw the impending danger, he was looking out of the window of the police station and thus was not on traffic regulation duty; he just acted in accordance with his general obligation towards the public, ran into the street, pushed a woman aside into safety, and stopped the runaways. The court observed that, if anyone is negligent, he is responsible for all the natural consequences of such negligence. Was the policeman's brave act a natural consequence of the van-owner's negligence in leaving the horses unattended? Yes, said the judge; if a horse runs away, it is obvious that people may be knocked down and that somebody will try to stop the animal in order to prevent injury to life and limb—"one must have regard not only to the victim but also to the rescuer." Judgment was given for the policeman with costs so that he will not suffer for his courage.

How are people likely to act in emergency? Ten years ago Mr. Justice Swift tried a case where, by the defendants' negligence, glass fell into a shop; a woman sprang forward to help her husband who was working there; she was hurt and it was held that she was entitled to damages against the negligent defendants. But Mr. Justice Finlay was faced last week by a recent decision whereby the Court of Appeal checked the tendency to extend the scope of liability. A dairycart had been left unattended, the horse bolted, and a neighbouring householder descended into his garden to see if his children were safe. Meanwhile the horse and cart had come to a standstill in an adjoining field; the man in charge of the cart had arrived on the scene and was shouting for help to hold the horse. The householder, who said he knew very little about horses, climbed over the fence into the field and went to the aid of the dairyman. The horse reared and knocked him down. The Court of Appeal denied his right to damages. Nobody, said Lord Justice Scrutton, has an absolute duty to run out and stop another person's horse; people must be taken to contemplate the probable consequences of their actions; the probable consequence of trying to stop a horse is that one is likely to be hurt. In last week's case Mr. Justice Finlay managed to distinguish the facts from those before the Court of Appeal. For one thing the policeman had a general duty to protect life and property; for another a runaway horse in a crowded street stimulates reactions different from those set up by a restive horse inside a field.

Scientific Evidence of Identity

Sir Francis Fremantle's question to the Home Secretary last week as to the admissibility of blood tests in affiliation cases elicited official recognition that the evidence would be admissible although any provision for compulsory tests would require legislation. As Sir John Gilmour pointed out, the present difficulty is practical rather than legal; there is the question of the cost of the test falling on the man and also the question of his securing the coöperation of the woman. In recent proceedings in the Chatham police-court, noted in these columns not long ago, the legal representative of the woman demanded the blood test, and in cross-examination obtained a consent from the man, but the magistrates decided the case on other grounds.

There was no serious doubt about the admissibility of the evidence if available. A parallel is afforded by expert evidence in criminal cases to determine whether blood is human blood or not. Juries may be unimpressed by a novel application of the results of scientific research, but at any rate the evidence can be offered. The position in criminal proceedings is dominated in English courts by the general principle that the prosecution must prove its case and that the accused has not to prove his innocence. The prosecution has no inherent authority to experiment with the body of the accused in order to establish a case against him. Even the taking of finger-prints or photographs is restricted by prescribed limitations. Once a man has been convicted, his finger impressions and his photograph and measurements may be compulsorily recorded under the Prison Rules, statutory authority being afforded by the Prevention of Crimes Act, 1871, as extended by Section 8 of the Penal Servitude Act, 1891. But an untried prisoner's finger-prints, photograph, or measurements can be taken in prison only on the order of the governor or upon an application in writing made by a police officer of not lower rank than a superintendent if the prisoner objects. The process is not automatic. If the untried prisoner adheres to his objection and force is required, the application must be confirmed by the Secretary of State or by a justice of the peace. If the untried prisoner is discharged or acquitted by the examining magistrates and has not been previously convicted, the photographs and finger impressions must be forthwith destroyed or handed over to him. The value of photography in identification is illustrated afresh by an Indian case recorded in the *Times* of April 18th. In 1925 a villager fired at the legs of two robbers who decamped. Recently a man in custody confessed to several robberies, including that of 1925, and gave the name of his accomplice, who was wounded in the knee. The accomplice was arrested and denied the accusation. There was no external sign of a wound, but X ray photography revealed five small shots in the knee. This evidence, not perhaps conclusive in itself, turned the scale and he was sentenced, nine years after the offence, to seven years' rigorous imprisonment by the Patna court.

KING GEORGE HOSPITAL, ILFORD.—In 1933 there were 3048 in-patients, a substantial increase, and 24,000 out-patients. The beds available are 142, but the average daily number made up was 148. In 1927 there were only 64 beds, by the end of the present year there will be 200. The average stay was 17·9 days. There was a surplus of income over expenditure of £70. The report claims "not only that the King George Hospital made a fuller use of the beds at its disposal than other comparable hospitals, but that the cost per bed was appreciably below the average." The average weekly cost per in-patient was £3 0*s.* 2*d.*, and the average total cost £7 13*s.* 11*d.*

PANEL AND CONTRACT PRACTICE

Sickness Benefit and the R.M.O.

LAST week in the House of Commons Mr. J. S. Crooke, M.P. for Deritend, asked the Minister of Health if he was aware that certain approved societies refused health insurance benefits to members, although certified by their panel doctors, unless and until the applicants had been examined by the regional medical officer; and whether, seeing that this action caused unnecessary hardship, he would take steps to revise the rules of approved societies to ensure that payments of benefit were made before the members were sent to the R.M.O. And the Parliamentary Secretary to the Ministry made the following reply:

> Where an approved society desires to obtain a second medical opinion on the subject of a member's incapacity for work, it is entitled to refer the case to a regional medical officer, and it is the general practice of societies in such cases to pay benefit in respect of any period of certified incapacity up to and including the date on which the member is examined by that officer. The payment is made at as early a date as accords with the society's general administrative arrangements, and the Minister does not think it would be reasonable or practicable to impose on societies an obligation to make the payment in all cases before the date of examination.

This defines the position which arises when an insured person claims to be incapable of following his occupation and consequently claims sickness benefit under the Act. The decision to pay or not to pay benefit rests with the approved society. It has to rely on obtainable evidence. If the insured person has kept his stamps up to date, and is not in any other way under the society's rules disentitled to benefit, then probably the most important piece of evidence the society will have to guide it in deciding whether to pay or not is the doctor's certificate. Societies get to know the relative value of these certificates. After the hundreds of thousands of references, after the inquiries into the certification returns, it is fairly well known in approved society circles whether the certificate of Dr. X is or is not likely to be upheld on appeal. If on reference to the R.M.O. most of his cases are found to be capable of work the insured person who claims sickness benefit on his certificate is suspect at once. Before any payment is made to him—and more especially if the sick visitor reports him to be looking well or able to get about—the society will ask the opinion of the regional medical staff. Under these circumstances it would not be "reasonable or practicable" to insist on prepayment of benefit, for it would be impossible to get the money back if the patient was found not to be incapable of work. He can of course appeal.

Some insured persons get the reputation of making claims which are not likely to be justified; they may be so good at it that a doctor who does not know their record may be deceived into granting a certificate of incapacity. Such a case will be sent to the R.M.O. with a report from the society that this patient on previous occasions has been found capable of work. The R.M.O. has the files before him and acts accordingly. The question of financial hardship does arise, although in London the arrangements are so precise that the R.M.O.'s opinion is obtained within four to five days.

Another point has been raised by the organising assistant medical secretary to the London panel committee as a result of his personal contact with insurance practitioners—viz., that many insured persons fail to present themselves for examination because they do not feel equal to the exertion and inconvenience of a journey to Westminster. The Ministry seem to have realised that there is something in this complaint for they have recently modified the arrangements. Whereas there used to be six or more sets of rooms at Dean Friar-street set aside for examination of referred persons there is now only one, and a new centre has been opened at Charles-square, Hoxton, with two sets of rooms, while a little time ago the Stratford-by-Bow centre was increased from two sets to three. There are of course other centres in the outskirts of London—e.g., at Kilburn, Tottenham, Lewisham, Clapham. The advantage of this arrangement is that patients do not have so far to travel and the railway and bus fares to be refunded are reduced in amount. It would be well for insurance practitioners, when sending in a report about a patient who has difficulty in getting about, to indicate to the divisional officer that such-and-such a centre would be convenient if it could be arranged. Another way of smoothing these difficulties is to give the particular day of the week on which a hospital patient usually attends there.

THE SERVICES

NEW CONDITIONS FOR R.A.M.C. OFFICERS

A Royal Warrant published in a special Army Order on April 27th promulgates new conditions under which the commissions in the R.A.M.C. will in future be granted to qualified medical men. The conditions will give effect to the recommendations in the Report of the Fisher Committee on the Medical Branches of the Defence Services issued last year, so far as they affect the Army. The report was fully dealt with at the time of its issue (v. THE LANCET, 1933, ii., 299 and 1059). Hence entry will be by short service commissions for 5 years, at the end of which time officers will be eligible for a gratuity of £1000, unless selected for permanent commissions. Promotion will be to Captain after 1 year and to Major after 10 years' service, instead of after 3½ years and 12 years respectively. The increments of pay which have hitherto been given in these ranks after 8 and 10 years in the case of Captains and after 15, 18 and 20 years in the case of Majors, will in future be given to Captains after 6 and 8 years and to Majors after 13, 16, and 18 years. The establishment of permanent officers will be maintained at a number which it is calculated will ensure promotion to Lieutenant-Colonel and Colonel after approximately 17 and 25 years' service respectively. In the past, the rank of Lieutenant-Colonel has been attained after about 24 years' service, and that of Colonel after about 29 years' service.

It should be noted that ample professional opportunities exist in the course of the duties of officers of the R. A.M.C., for these comprise not only the medical care of the soldiers but of their wives and families, while officers are encouraged to specialise in selected subjects. A selection of candidates for the service, we are informed, will be made about the middle of next June, and full particulars of the conditions can be obtained either by personal application or by letter addressed to the Assistant Director-General

Army Medical Services, the War Office, London, S.W.1.

ROYAL NAVAL MEDICAL SERVICE

Surg. Lt. C. H. Egan to be Surg. Lt.-Comdr.

The following appointments are made: Surg. Comdr. N. A. H. Barlow to *President* for Royal Tournament.

Surg. Lt. D. W. Walker to *Drake*.

ROYAL ARMY MEDICAL CORPS

Maj. C. H. H. Harold to be Bt. Lt.-Col.

RESERVE OF OFFICERS

Lt. W. F. de C. Veale, from Wilts R., Supp. Res. of Off., to be Lt.

Dental Corps.—Lt. G. W. C. Bolster, from Gen. List, to be Lt.

TERRITORIAL ARMY

Col. L. D. Bailey, K.H.P., vacates the appt. of A.D.M.S., 47th (2nd Lond.) Div., on completion of tenure, and Col. P. H. Mitchiner, K.H.S., is appointed to the vacancy.

Lt.-Col. F. R. Harris resigns his commn. and retains his rank, with permission to wear the prescribed uniform.

Capt. P. W. MacLagan, having attained the age limit, retires and retains his rank, with permission to wear the prescribed uniform.

A. W. Henderson to be Lt.

Supernumerary for service with the O.T.C.—W. M. Nichols (late Cadet Serjt., Glasgow Univ. Contgt., Sen. Div., O.T.C.) to be Lt. for duty with the Med. Unit of the Glasgow Univ. Contgt., Sen Div., O.T.C.

INDIAN MEDICAL SERVICE

Col. D. P. Goil to be Maj.-Gen.

Lt.-Cols. H. C. Buckley and C. H. Reinhold to be Cols.

Maj. N. S. Jatar to be Lt.-Col.

Lts. F. A. B. Sheppard, M. K. Bryce, and J. L. O'Neill to be Capts.

Lt. (on prob.) H. H. Mahmood to be Capt. (on prob.).

Capts. B. Singh and J. M. Gole relinquish their temporary commns.

ROYAL AIR FORCE

V. D'A. Blackburn and J. A. Crockett are granted short service commissions in the rank of Flying Offr. for three years on the active list.

Flight Lts. F. P. Schofield and G. J. Hanly are promoted to the rank of Squadron Leader.

Flying Offrs. H. J. Melville, J. L. Walsh, and A. H. Osmond are promoted to the rank of Flight Lts.

Flight Lt. M. J. Cahalane relinquishes his temporary commission on completion of duty.

Flight Lt. (Honorary Squadron Leader) E. E. Isaac relinquishes his temporary commission on completion of service.

Dental Branch.—W. V. A. Denney is granted a non-permanent commission in the rank of Flying Offr.

Flying Offr. J. E. Willoughby is promoted to the rank of Flight Lt.

CINERADIOGRAPHY

AT a special meeting of Fellows of the Royal Society of Medicine held on May 1st, Dr. RUSSELL J. REYNOLDS gave a demonstration of a practical method of X ray cinematography. The President, Mr. V. WARREN LOW, took the chair.

Dr. Russell Reynolds recalled that in 1897 Dr. John MacIntyre, of Glasgow, had shown the moving bones of living animals. His own first experiments had been made in 1921. Methods, he said, must be simple, expeditious, and inexpensive if they were to come into general use. There were two means of taking rapid serial radiograms: the direct and the indirect. The former being very costly, he had directed his attention to the indirect method, in which an ordinary cinematographic camera was used to take photographs of the shadow cast on a fluorescent screen. The three essential conditions were: a sufficiently brilliant image, cutting off the unwanted X rays from the film and ensuring that the subject was not exposed to an excessive dose. Only recently had technical improvements made it possible to obtain satisfactory records of the viscera. Fortunately the lens itself proved to be sufficient protection against direct rays, and it was only necessary to protect the camera with lead. The patient could be protected by synchronising the working of the X ray tube with the movements of the camera shutter. A total exposure of 16 seconds to one area had been given and repeated, and no ill-effects had been noticed. Dr. Reynolds showed lantern slides of the synchronising apparatus and the general lay-out, and gave details of the technique. The method was simple enough, he said, to be worked in any hospital or consulting room, and the apparatus took up very little room. The film was non-inflammable so that no special fire precautions were necessary. The image could be projected normal-sized or enlarged. It was unnecessary in practice to have a long length of film; a short piece could be made up into a band and run continuously through the projector. In this way cases could be studied at leisure. The exposure need only be long enough to obtain a record of the movements desired; in most cases this could be done on a piece of film a foot or more long in a very few seconds. The resulting negative could be printed off again and again on a length of positive film. The expense of production with a 16 mm. film was small.

Dr. Russell Reynolds considered that the method should prove of immense value in investigating lesions of the lungs and pleuræ, especially after lipoidol injections or artificial pneumothorax. There were obvious advantages, too, in being able to study indefinitely movements in pathological states of the alimentary tract. In orthopædic lesions the range of movement in joints could be observed and progress watched. The permanent records could be used in diagnosis, to watch progress or the effect of treatment, to send to other physicians for information or a second opinion, and for teaching purposes. The value of radiology in elucidating anatomy was well recognised; radio-cinematography would do much to reveal the function of organs, notably the heart.

Dr. Russell Reynolds then took a film on the platform, where apparatus was set out for inspection. The film was developed and shown at the conclusion of the meeting. A series of beautiful human films was demonstrated, showing movements in joints, the process of deglutition, the movements of the stomach and intestines, the action of the heart and aorta, respiratory movements of the diaphragm and ribs, and finally the modified, laboured action of some pathological hearts.

Dr. R. JANKER (Bonn) said that he had cinematographed small objects only by the direct method, at a rate of 22 exposures a second. He showed lantern slides of his apparatus and technique, and then a series of films. The first was the thoraces of a rabbit and a cat showing respiration and heart action in normal breathing and in single and double pneumothorax. The effects of carbon dioxide were shown, and the pulsation of the bronchi demonstrated by filling them with opaque substance. Some interesting pictures showed opaque injection into the femoral vein, its rapid passage to and through the heart, and the formation of emboli in the lungs. Striking films of gastro-intestinal movements in animals followed.

Both sets of films met with high praise from a critical audience who were obviously impressed with the possibilities of the new technique.

CORRESPONDENCE

PSYCHOLOGICAL MEDICINE AT THE NEW POST-GRADUATE SCHOOL

To the Editor of THE LANCET

SIR,—Though increasing public and professional interest in the British Post-Graduate Medical School is becoming evident, no reference whatever, so far as I am aware, has been made to the place, if any, that the teaching of psychological medicine is to have in this new organisation. If the tributes to the importance of "the psychological factor in medicine," and the endless variations on that theme, which have flooded the lay and medical press of recent years, have any meaning at all, then it is surely beyond serious question that some sane teaching on the elements of psychological medicine would be of more real help to the general practitioner, and would do more to increase his efficiency in his daily work, than any "refresher" course in medicine, surgery, or obstetrics that could possibly be devised. Here, in short, is a unique opportunity to translate lip-service to an ideal into practical effort to realise it.

I think that those whom the teaching activities of the medical school are intended to benefit have the right, and indeed the duty, of expressing themselves on the subject, and that their views would afford most interesting and helpful information. I suggest therefore that it would not be the least of THE LANCET'S services to the profession, were you to invite practitioners likely to avail themselves of the medical school's teaching to state their opinions on this matter in your columns.

To avoid possible misunderstanding and the raising of side issues I should add that although the teaching I have referred to would be eminently practical, and in the truest sense clinical, it is not for a moment suggested that there should be in-patients for demonstration. Out-patients from elsewhere could doubtless attend if required, but, in my view, we have a long way to go before even this would be essential. I am, Sir, yours faithfully,

Harley-street, W., April 30th. HENRY YELLOWLEES.

THE REGISTRATION OF OSTEOPATHS

To the Editor of THE LANCET

SIR,—The second reading of the Osteopaths' Registration Bill is entered upon the order paper for Wednesday, May 2nd. I have put down a motion for its rejection which will at any rate prevent its going through without opposition.

The Bill, presented for the second time, retains the two most mischievous provisions of the first Bill, and upon them I ask leave to comment.

1. The Bill seeks to legalise complete equality of opportunity with the medical profession in the treatment of disease in general without equality of preparation. 2. It seeks to confer upon holders of foreign certificates of competence exactly the same privileges as upon holders of British certificates, without their fitness being tested otherwise than by the presentation of that foreign certificate.

The Bill has the support of an organisation calling itself the "British Osteopathic Association." The sole qualification for its assumption of the title "British" is that it operates in this country. It has been described by a past-president as "a body which represents fully-trained osteopaths *who have received their qualifications in one or another of the recognised colleges of osteopathy in the United States.*" (The italics are mine.—E. G.-L.) The British Osteopathic Association refuses to recognise the British School of Osteopathy, although that school has been operating in this country for 17 years, and as the Dean of the School, in a plaintive letter to the *Times* of Nov. 6th last declared, has followed the pure doctrine of the founder of osteopathy, A. T. Still, as expounded some 50 years ago. The present Bill may therefore be quite accurately described as a very impudent attempt to establish a monopoly in this country for the American colleges. I am glad to think that it is this aspect of the Bill which will secure its defeat in the House of Commons. Mr. Neville Chamberlain, then Minister of Health, speaking in the debate in the House of Commons upon a similar demand (Hansard, Feb. 9th, 1926), said: "You would be put in this position, that you would have to fall back upon the diplomas which have been given by American colleges, over whose curricula nobody in this country has any control whatsoever. I think the House will agree that to ask us in this country to accept diplomas from another country, into the value of which we really could not pretend to examine, and over the qualifications for which we have no control, is really not a practicable proposition." It will be seen that Mr. Chamberlain used the word "American" and not "foreign," and this use is justified by the fact that the demand comes entirely from holders of American certificates. Mr. Chamberlain in the same debate threw out the hint that the first step for osteopaths wishing to legalise osteopathic practice in this country was to start colleges of their own which would ultimately give these diplomas, and he prophesied that "the curriculum of these colleges would gradually have to conform to something very nearly approaching the normal (medical) curriculum in this country. . . . The more that is the case, the more easy it will be to form a register, if they still desire to have one."

In an address at the Royal Institute of Public Health, Oct. 9th, 1933, I suggested that the reform of the medical curriculum, long overdue, might and probably would result in a much modified minimal course which would admit to registration and which would secure a measure of instruction in medicine, surgery, and midwifery that would render the registered person a "safe" practitioner. The shortening of the course to four years, as suggested in my address, would allow of the provision that every person seeking to practice the healing art should take this minimal training, and the osteopathic aspirant should go through this training, with perhaps some minor modifications, on the analogy of the qualification now exacted for dental students, which is also a four years' course. I am convinced that it is on these lines only that a Bill for the registration of osteopaths has any chance of passing the House of Commons.

I am, Sir, yours faithfully,

April 30th. E. GRAHAM-LITTLE.

TESTS FOR MOTOR DRIVERS

To the Editor of THE LANCET

SIR,—The editorial article in your last issue concerning the driving tests carried out by the National Institute of Industrial Psychology interests me particularly, as recently I submitted myself to those tests on behalf of the business concern to which I am medical officer and whose numerous motor drivers I examine. Like your medical representative, who

underwent the tests, I have been driving cars for 25 years and so far without accident, and like him I found that the actual driving test in the stationary car with moving landscape caused extreme nausea—in my case almost to the point of emesis, after 20 minutes' driving. This however I attribute to the fact that I have both hyperphoria and exophoria and was without the correction that I usually wear.

That these departures from normal are not of the importance the Institute seems to attach to them is, I think, shown by the fact that my score for judgment of relative size of near and distant objects was "high" and the score for the driving test "very good." Perhaps your representative, unknowingly, has a similar defect in visual coördination which probably will be found present in all so affected by this test with its constant cornering. Two of the corners on the route are at such an angle that no normal car could be taken round them and several are so sharp that it is not possible to drive wide enough to leave room for oncoming traffic. Some emergency obstruction should, I think, be restored to the route which would also be improved by a cross road with approaching vehicles. It is surprising that there is no test for peripheral vision which is so important a factor, though in some degree it is involved in the reaction time test. Nor is there any test for visual acuity in a bright light such as occurs when meeting headlamps at night. Not a few drivers have central opacities of the lens or cornea round which they see fairly well in daylight but which occlude the pupil when the iris is contracted, and some suffer from optic neuritis or atrophy making vision difficult under such circumstances.

Admittedly the Institute's tests are still in the experimental stage and much credit is due to it for the admirable way in which they have been conceived and carried out. The tests take about two hours to complete and necessarily this involves a fee which limits their use on a large scale. As an alternative to its present full course, could not the Institute evolve a shorter series of tests, including all essentials, which could be available at a cost of half a guinea and eventually become obligatory before car-driving licences could be obtained?

I am, Sir, yours faithfully,

London, W., April 27th. N. HOWARD MUMMERY.

THE MANAGEMENT OF A COLOSTOMY

To the Editor of THE LANCET

SIR,—Mr. Duncan Fitzwilliams, in describing the management and toilet of a colostomy in his article on carcinoma of the rectum in your issue of April 21st (p. 844), states that "the patient with a colostomy . . . . has no inconvenience *except when washing himself*" (the italics are mine), and in another paragraph advocates the use of a special rubber kidney tray for the wash-out. This makes me think he is unaware of the colostomy "horn" made for me by Messrs. Allen and Hanburys (described in THE LANCET, 1931, ii., 690), and leads me to suggest that if he will give it a trial for his next case, in place of the kidney tray, he will find that the toilet becomes a cleanly procedure, and the inconvenience and discomfort are reduced to a minimum.

The horn is a curved tube of non-inflammable celluloid, which is placed over the colostomy and held in position by a webbing band with a simple clip. On its upper surface there is a large opening through which the rectal tube can be passed into the bowel. After the enema has been given, the rectal tube is withdrawn, the opening in the horn closed with a lid, and the patient (who should be recumbent) adjusts his position in such a way that the distal end of the horn projects into a wide-mouthed jar. He can then smoke and read the paper in comfort, and with complete freedom from soiling whilst the colostomy acts. The toilet is completed by flushing the colostomy and surrounding skin thoroughly with a stream of fluid from the douche-can directed through the opening in the horn.

An additional comfort is an excellent belt (without a cup), invented by a lay patient and called the Agordion Colostomy Belt. It is made by Messrs. H. E. Curtis and Son, and is the best of its kind I have seen.—I am, Sir, yours faithfully,

Harley-street, W., April 28th. CYRIL A. R. NITCH.

NITROUS FUMES

To the Editor of THE LANCET

SIR,—In the issue of THE LANCET for Feb. 3rd (p. 259), in a report on Nitrous Fumes causing Death, is this statement: "Evidence of nitrous acid can be found even in the smoke from a cigarette. . . ." Is it not possible that this nitrous acid is a product of the combustion of potassium nitrate added to the tobacco in the manufacture of the cigarette? This raises another subject which has often been mentioned in your columns—the toxicity of tobacco smoke: how much of it is due to nicotine and how much to nitrous fumes? My own personal experience is that certain brands of pipe tobacco which obviously contain a considerable proportion of potassium nitrate have a much greater toxic effect on me than other brands in which the nitrate content is probably much less, as indicated by the absence of sparking and crackling when burning.

I am, Sir, yours faithfully,

C. F. HODGKINSON, M.B., Ch.B.

Hobart, Tasmania.

JEWISH MEDICAL AND DENTAL EMERGENCY ASSOCIATION

To the Editor of THE LANCET

SIR,—May I beg the hospitality of your columns for an appeal to Jewish practitioners to contribute to the fund which this association has instituted for the settlement of displaced Jewish medical scientists. It is common knowledge that a great amount of scientific work of the highest importance has been disturbed and threatened with extinction by the present policy of racial exclusion in Germany; and it is its recognition of its special duty to preserve for humanity what it can of this valuable work which has caused the Association to devote its fund to this purpose.

It is proposed to use the bulk of the money collected to settling Jewish medical scientists in Palestinian institutions (the Hebrew University, the Hadassah hospitals, &c.) where the Association has already been instrumental in establishing several such workers, and it is hoped, by the collection of a substantial sum, to enlarge these possibilities. I would, therefore, desire to draw the attention to the fund of such practitioners who have not been apprised of the work of the Association, and to solicit their coöperation. Donations should be sent to the Treasurer, Jewish Medical and Dental Emergency Association, Woburn House, Upper Woburn-place, London, W.C.1.—I am, Sir, yours faithfully,

L. PHILLIPS,

April 25th. Hon. Secretary.

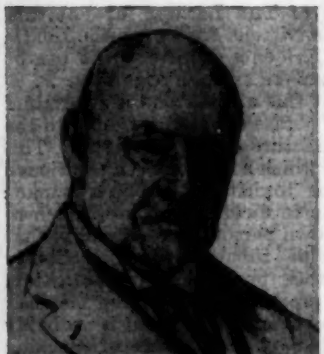
OBITUARY

WILLIAM HENRY WELCH, M.D. Columbia Univ., Sc.D. Camb., F.R.C.P. Edin.

LATE DIRECTOR, JOHNS HOPKINS SCHOOL OF HYGIENE AND PUBLIC HEALTH

THE death is announced of Prof. William Welch, the great pathologist, which occurred on April 30th in the Johns Hopkins Hospital, Baltimore, at the age of 84. His fame was literally world-wide.

William Henry Welch was born at Norfolk, Connecticut, in 1850 of a remarkable medical lineage, for his father, his grandfather, and his great-grandfather were doctors, while he had four medical uncles. A student of the University of Yale he graduated there in Arts in 1870 with high classical honours, but reverted immediately to the family vocation, and in 1871 began his medical curriculum at the College of Physicians and Surgeons, New York. This he added to by scientific work at Yale, and graduated at the College in 1874, when he became interne at the Bellevue Hospital in New York City. This post he held for over a year, and in 1876 started on a series of post-graduate instruction on the continent. His selection of centres and of great leaders was remarkable. At Strassburg von Recklinghausen, at Leipzig Ludwig, and at Breslau Cohnheim assisted in Welch's acquisition of a wide range of knowledge. In Cohnheim's laboratory he witnessed the early experiments of Robert Koch; he went for some months to Vienna, where Chiari and Hebra added to his accumulating store; and before returning to New York in 1878 he made a short stay in London in order to attend Lister's lectures. More remarkable than the young man's ambition and assiduity must seem his power—soon to be proved—of sifting and assimilating such varied and often critical information, retaining both the spirit and the essentials.



WILLIAM HENRY WELCH

From a dry-point portrait by Alfred Hutty

On his return to New York it is not surprising that there was competition for his services, and within the next eight years he was offered teaching positions at the College of Physicians and Surgeons of New York (Columbia University), and at the Bellevue. From his first-hand experiences he was able to take, or rather was given, an absolute leadership in settling the share which bacteriological theory and experiment, pathology and pathological anatomy should play both in the routine education of the medical student and in the general development of clinical medicine. A few years later began his long association with the Johns Hopkins University of Baltimore. The story runs that the authorities of the new university inquired from European leaders of medicine for a man qualified to guide the students of Baltimore in modern pathology, when the reply was received that the ideal man for the task was already in their own country and at their doors. As a result Welch was appointed at the age of 34 the first professor of pathology in the university and pathologist to the Johns Hopkins Hospital. His next step was characteristic, for he immediately returned to Europe further to study bacteriology under Koch in Berlin, to work with Pettenkofer in Munich, and with Flügge in Göttingen. He was absent for a year, but the time was well spent, for immediately in the new medical school developments were made in the teaching of pathology under which all the various branches of the subject were correlated with the well-known results. And he worked in a wonderful milieu, for three of the staff of the hospital at the time were William Osler, W. S. Halsted and H. A. Kelly. When the Johns Hopkins medical school was officially opened in 1893 Welch was appointed dean, and gathered round him an institute of experimental medicine of a character unknown in America before—the names of the post-graduate students make medical history. He held the post for five years and discharged its duties while conducting his own investigations, supervising the collection of pathological specimens for a museum, and lecturing in learned and fascinating way for his teachings were always suggestive of new undertakings, so that those who studied under him caught the zest of his personality. His famous pupils as much as his own work established him as a world influence; and many of them became the leaders in campaigns of all sorts for social and hygienic reform, for Welch was a great judge of character and knew extraordinarily well the qualities of those who served with him.

Welch's career was one of public service. He was president of the Maryland State Board of Health for a quarter of a century, and modern sanitary conditions in Baltimore are the result of his work. In the legislature he was able to promote the enactment of many measures bearing on public health, while he took a prominent part in the formation of the Yellow Fever Commission of the United States Army, upon whose labours followed the comprehension and prevention of yellow fever. During the war, while acting as director of the Johns Hopkins School of Hygiene and Public Health, he discharged medical duties in connexion with the United States Army Reserve, with the final rank of brigadier-general. He resigned his post as director of the School of Hygiene in 1926, but although aged 76, he knew that he had it in him to further promote the cause of medical science. He accepted the position of professor of the history of medicine in the University and—characteristically—immediately came to Europe to study similar institutes and to buy books bearing on the enormous subject. On his return to Baltimore the university founded what is now known as the William H. Welch Medical Library.

Consultation of the Surgeon-General's Catalogue will reveal an extraordinary list of writings under Welch's name. Most were short—almost pamphlets, all were worth while, and many were reissued more than once and bound up as series. His principal contribution to our learning is the treatise on the general bacteriology of surgical infections. It was not, however, as writer, but as original worker and fine exponent of the work of others that he won his fame. And how far-ranging that was is shown by his possession of a long list of honorary doctorates,

his nomination to a similarly long series of presidencies of all sorts, including the medical board of the Rockefeller Foundation, and his decorations received from the governments of many foreign countries.

Welch, through frequent visits to Europe, was well known to many English medical men, who will recall his quietly learned conversation, his hospitality, and his courtesy. He could never be mistaken for other than a great man, and he never posed as such.

He was unmarried.

THOMAS RICHARD LLEWELLYN, L.R.C.P. Lond., M.R.C.S.

THE death occurred on April 20th of Dr. Thomas Richard Llewellyn at his house in Penarth. He received his medical education at University College, London, and for a considerable period practised as a colliery medical officer. He was surgeon to Porth Cottage Hospital, Glamorganshire, and acquired an extensive medical practice in the Rhondda Valley, from which he retired to join the Regional Medical Service on its inception in 1920.

We have received from Dr. Llewelyn Williams, medical member of the Welsh Board of Health, the following tribute to Dr. T. R. Llewellyn, whose death constitutes a genuine loss to insurance medical practice in South Wales: "Dr. Llewellyn acted as regional medical officer for East Glamorgan and Monmouthshire. He was a man of strong personality and his high ideals of medical service called for the best from insurance practitioners who practised in his region. He was always frank and straightforward and had a somewhat courtly manner; no one could take liberties with Dr. Llewellyn, but those who tried to do their best found in him a good friend. His wide clinical experience in a large colliery practice before and after the passing of the National Insurance Act enabled him to perform his duties as medical referee with great satisfaction to approved societies and insurance medical practitioners. Much of the improvement in the clinical aspect of insurance practice is due to his efforts. The Welsh Board of Health have lost a loyal and efficient officer and his medical colleagues a true and faithful friend."

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS

Lotteries and Hospital Finance

IN the House of Lords on April 26th, the Marquess of LONDONDERRY, in moving the second reading of the Betting and Lotteries Bill, said the Government had not approached this question from the moral point of view. Private morals were a matter for the individual conscience and the improvement of individual behaviour must be left to the influences of religion and education. Their sole concern had been with the social effects of gambling, and they had based their proposals solely on a consideration of the evil social consequences which excessive and continuous gambling had been shown by experience to entail. Under the existing law all lotteries were unlawful, unless expressly authorised by Act of Parliament.

The law made no differentiation between large and small lotteries, or between public and private lotteries; and it was immaterial whether a lottery be for charity or for private gain. If the law were strictly enforced effective steps could be taken to suppress at any rate those lotteries which were promoted in this country. But the law had long been recognised to be too drastic in its provisions so far as concerned certain innocuous forms of lottery; and an administrative practice had grown up in England and Wales, and had been in force for many years, under which the police did not set the criminal law in motion against private lotteries confined to members of a genuine club or society or against such small public lotteries as raffles at bazaars and the like. As the Royal Commission pointed out, a new situation had arisen from the sale in this country of tickets in lotteries promoted abroad, notably the Irish Hospitals Trust sweepstakes. Ever since the introduction of the Irish sweepstakes there had been an agitation in this country for the legalisation of large lotteries for charitable and other objects, but, so far, Parliament had definitely set its face against any relaxation of the existing law, and had maintained the prohibition of all forms of lotteries, whether promoted for charitable or other objects. In 1918, long before the Irish sweepstakes, a second reading was refused in the House of Commons to a Bill (the Lotteries (War Charities) Bill, 1918), which had passed through their Lordships' House, and the object of which was to allow the governing body of a registered war charity, with the consent of the police, to raise money by lotteries.

The question of lotteries, said Lord LONDONDERRY, came up for discussion again in May, 1931, when leave to bring in a Bill to authorise the raising of money by means of lotteries for the support of hospitals was refused in the House of Commons. In 1932 a Bill making it lawful for the governing body or trustees of any charity, within the meaning of the Charitable Trusts Acts, to hold a lottery, with the approval of the Secretary of State, to raise money for charitable, philanthropic, scientific, or artistic purposes, or for carrying out any public improvement or other public object, obtained a first reading in the House of Commons, but made no further progress. The Royal Commission, in their final report, reached the conclusion that a relaxation of the existing prohibition of large lotteries was undesirable and not called for. The Government, having also given independent consideration to the question and having studied the views expressed in the House of Lords on Nov. 30th last (see THE LANCET, 1933, ii., 1346), were in agreement that large scale lotteries, whether promoted by the State, for the direct benefit of the Exchequer, or by a statutory Board, for charitable objects, or by individual charities under a system of permits, were socially undesirable.

As regarded lotteries for charitable purposes, it might be questioned, as the Royal Commission pointed out, whether in the long run voluntary hospitals in this country would benefit by participation in the proceeds of lotteries, and speaking for himself, as president of two hospitals, he was quite convinced that the adoption of the system of public lotteries for the support of our hospitals would be disastrous.

The total receipts of 1014 British hospitals for the year 1930 was over £15,500,000. It was clear that, unless the total subscriptions to lotteries amounted to a very large figure, the proceeds would not be a very material factor in hospital finance. But, quite apart from the purely financial consideration, he was of the opinion that it would be calamitous to this country if, by encouraging hospitals to derive their finances from the proceeds of lotteries, hospitals were to lose that element of personal service and personal interest which the present voluntary system achieved.

If the promotion of large lotteries in this country was to be prohibited, the prohibition of the sale of foreign lottery tickets was a necessary corollary.

The law against lotteries was over 100 years old. In form it was largely archaic, and experience had shown that one of its greatest defects was that it did nothing to stop one essential factor in the success of the Irish sweepstakes—namely, press publicity. Clause 19 of the Bill maintained and re-enacted the general prohibition of lotteries other than certain small schemes. It would continue to be an offence to print, publish, or sell, or distribute, or advertise for sale any tickets or chances in a lottery. The Bill prohibited absolutely the publication of matter descriptive of the drawing, or intended drawing, of any lottery, or any list (whether complete or not) of prize-winners or winning tickets in the lottery. It prohibited the publication of any other matter relating to any lottery which was calculated to act as an inducement to persons to participate in that lottery or in other lotteries. It made it an offence to bring

into, or to invite any person to send into, this country any tickets or advertisements of a lottery for the purpose of sale or distribution. It prohibited the sending abroad, by agents in this country, of counterfoils or money derived from the sale in this country of foreign lottery tickets.

The Bill did not seek to make it an offence for an individual to purchase a ticket in a lottery. That was in accordance with the general principle, which they had adopted, that the law was aimed at the exploitation of the gambling propensity of the public, and did not seek to punish the individual citizen who made use of facilities for gambling provided by others.

Water-supplies Bill

In the House of Commons on April 30th the Water Supplies (Exceptional Shortage Orders) Bill was read a third time. Sir HILTON YOUNG, in moving the third reading, said that although there had been a welcome change, it had not been so substantial as to make the measure unnecessary. There had not been more than normal rains, and abnormal rains would be necessary to relieve the Government from the necessity for the emergency measures. He had received returns from nine of the places where the difficulties were greatest, and in only one place had there been such a large increase as to put a new face on the situation. The Government still looked to the country as a whole for its coöperation in protecting itself against the evil consequences of the drought.

Health and Welfare in Shops

On April 30th the Shops Bill, which had already passed through the House of Lords, was read a second time and committed to a standing committee.

Plymouth Hospital Bill

In the House of Lords on May 1st, the South Devon and East Cornwall Hospital, Plymouth, Royal Albert Hospital, Devonport, and Central Hospital, Plymouth (Amalgamation, etc.) Bill was read the third time, and passed.

HOUSE OF COMMONS

WEDNESDAY, APRIL 25TH

Sulphur Fumes from Battersea Power Station

Mr. ALAN TODD asked the Minister of Transport whether he was satisfied that the pledge given by the Government on Sept. 26th, 1929, to the representatives of the Chelsea borough council with reference to the emission of sulphur fumes from the Battersea power station had been fulfilled; and if he would make a statement as to the question of emission of smoke and fumes from the power station.—Mr. OLIVER STANLEY replied: The pledge referred to still holds, and the remaining sections of the new Battersea power station will not be sanctioned unless the gas washing plant already installed is working efficiently. The position at present is that while there is no reason to be dissatisfied with the results so far obtained, the station has not yet been in commercial operation sufficiently long for a final conclusion to be reached.

Medical Treatment of Unemployed Persons

Mr. JOHN asked the Minister of Health whether it was intended that persons in receipt of transitional benefit and who had lost their medical benefit under the National Health Insurance Act should be entitled to medical treatment from the public assistance authorities.—Mr. SHAKESPEARE, Parliamentary Secretary to the Ministry of Health, replied: All persons who are insured under the National Health Insurance Acts are entitled to medical benefit under those Acts. Persons who have ceased to be insured, whether in receipt of transitional payment or not, and who are in need of medical treatment and are not in a position to meet the cost of such treatment, are entitled to have recourse to the public assistance authorities.

THURSDAY, APRIL 26TH

Boys and Corporal Punishment

Mr. BERNAYS asked the Home Secretary how many boys under 14 were sentenced to corporal punishment in 1933; and whether he was satisfied with the response by magistrates to the official discouragement of the Home Office of the frequent employment of this form of punishment.—Sir JOHN GILMOUR replied: Statistics for 1933 are not yet available. A circular letter about the Children and Young Persons Act of 1933 was sent by the Home Office to courts of summary jurisdiction in August last, and in this circular it was pointed out that while in the new Act the power to order a child to be whipped is retained, the practice of the most experienced juvenile courts for many years shows that these courts rarely or never need to exercise this power. The question when use shall be made of any form of penalty authorised by law must be one for the discretion of the justices.

Milk-supplies to Public Institutions

Lieut.-Colonel HENEAGE asked the Home Secretary whether the contracts of the institutions under his control required the purchase of certified, Grade A, or ordinary standard milk.—Sir JOHN GILMOUR replied: As regards schools approved under the Children and Young Persons Act, 1933, some provide themselves with milk from their own farms; the others purchase ordinary standard milk. As regards prisons and borstal institutions, milk contracts require the supply of fresh genuine whole milk, the conditions being substantially the same as those laid down by the Milk Marketing Board. Certified and Grade A milk is not used.

Injuries and Sickness Caused by Police Sports

Mr. LUNN asked the Home Secretary the number of men at present on the sick list as a consequence of injuries received or sickness resulting from participation in police sports.—Sir J. GILMOUR replied: At the present time 32 members of the metropolitan police force are on the sick list for the reason stated—one sergeant and 31 constables.

Equalisation of Rents of Council Houses

Mr. JOEL asked the Minister of Health the number of councils which, at the present time, were considering schemes for the equalisation of rents under which it was proposed to pool the subsidies and to see that the poorest people get the full benefit and the tenants who could afford it paid economic rents.—Sir HILTON YOUNG replied: Local authorities are not required to report action of this kind, or their consideration of its possibility to me, but under the existing law a general pooling of the subsidies given under two or more separate Acts is not permissible.

Miss RATHBONE: Is the right hon. gentleman aware that a considerable number of these local authorities are pooling a part of the subsidy for the relief of poor tenants, and that the Leeds corporation is the only municipality which is pooling the whole of the subsidy and requiring tenants who can afford it to pay the full economic rents as recommended by his own circular?

Sir HILTON YOUNG: I am certainly aware that the development in Leeds goes very much further than anywhere else.

Mr. MABANE: Is it not a fact that in Leeds hundreds of corporation houses are being vacated and are empty?

Sir HILTON YOUNG: I am aware that the experiment being conducted in Leeds is not wholly without friction.

Major MILNER: Is the right hon. gentleman aware that in point of fact it is a great success, and that there is a surplus on the rent pool of some thousands of pounds?

No further answer was given.

Scales of Relief for Children

Mr. HUTCHISON asked the Minister of Health which public assistance authorities had taken steps to raise their scales of relief for children to 3*s*. per head since February of this year.—Sir HILTON YOUNG replied: I am aware that this increase has been made, in the period suggested, by the county borough councils of Bolton, Rochdale, and Salford. I should, however, explain that there is no obligation on public assistance authorities to frame a scale of relief or to report any scale so framed to me, and that there has never been any rule that the relief granted to the head of a family in respect of a child should be fixed at any particular figure.

TUESDAY, MAY 1ST

Medical Branches of Defence Services

Captain ELLISTON asked the Secretary to the Treasury whether he could now announce the decisions of the Government as to the recommendations of the Warren Fisher Report on the medical branches of the defence services.—Mr. HORE-BELISHA replied: The Government have adopted the recommendations of the committee in their application to the medical branches of the Army and Royal Air Force. As regards the Royal Navy it has been considered necessary to modify the scheme recommended in certain particulars. The changes will take effect from to-day, and details will be found in the various orders which are on the point of publication.

MEDICAL NEWS

General Medical Council: Election of Direct Representative

The result of the voting in the recent election of a direct representative for England, in the place of the late Dr. Christine Mary Murrell, was as follows:—

HARRY GUY DAIN, M.B., M.R.C.S.	11,091
EDWARD ANDREW GREGG, L.R.C.P. & S.I.	3,194

Dr. Dain has accordingly been elected a member of the General Council of Medical Education and Registration of the United Kingdom, representing the registered medical practitioners resident in England, for a period of five years from April 27th, 1934.

University of Oxford

On April 26th the degree of doctor of medicine was conferred on F. J. Sale.

University of Cambridge

On April 28th the following degrees were conferred:—

M.D.—F. A. Richards and Hermon Taylor.
M.B. and B.Chir.—Alan Bowen-Davies.
M.B.—R. H. Fish and E. W. Taylor.
B.Chir.—P. R. Goodfellow, H. J. M. Robinson, and W. F. Nicholson.

Royal College of Physicians of London

At a comitia of the college held on April 26th, with Lord Dawson, the president, in the chair, the following members were elected to the fellowship:—

Thomas Gillman Moorhead, M.D. Dub., President of the Royal College of Physicians of Ireland; Duncan Graham, M.D. Toronto (Toronto); Patrick Playfair Laidlaw, F.R.S., B.Ch. Camb. (London); Geoffrey Eden, M.D. Camb. (Birmingham); Helen Marion Macpherson Mackay, M.D. Lond. (London); Walter Rupert Reynell, D.M. Oxon. (London); Richard Christopher Clarke, M.B. Brist. (Bristol); James Riddell Bell, M.D. Melb. (Melbourne); Thos. Sidney Nelson, M.B. Oxon. (London); William Stobie, M.D. Edin. (Oxford); Thomas Arthur Hughes, M.D. Dub. (Lahore); Claude Blaxland Levick, M.B. Sydney (London); Peter Knight McCowan, M.D. Edin. (Cardiff); Maurice Elgie Shaw, D.M. Oxon. (London); Sidney Campbell Dyke, D.M. Oxon. (Wolverhampton); William Moodie, M.D. St. And. (London); William Ernest Lloyd, M.D. Lond. (London); Victor John Frederick Lack, M.D. Lond. (London); Bernard Edward Schlesinger, M.D. Camb. (London); Alan Aird Moncrieff, M.D. Lond. (London); William Edmund Cooke, M.D. Liverp. (Wigan); Edward Revill Cullinan, M.D. Lond. (London); Kenneth Edwin Harris, M.D. Camb. (London); Henry Cohen, M.D. Liverp. (Liverpool); William Robert Fitzgerald Collis, M.D. Camb. (Dublin); William Norwood East, M.D. Lond. (London); Robert Dick Gillespie, M.D. Glasg. (London); Warrington Yorke, M.D. Liverp. (Liverpool); Fergus Robert Ferguson, M.D. Manch. (Manchester); Sir Pendrill Charles Varrier-Jones (Papworth); and John St. Clair Elkington, M.B. Camb. (London).

The following were admitted members of the College:—

Stanley George Browne, M.B. Lond.; William Allen Daley, M.D. Lond.; Ramanlal Ambelal Desai, M.B. Bombay; Kenneth James Franklin, D.M. Oxon.; John Bishop Harman, L.R.C.P.; Arthur Landau, M.B. Cape Town; Charles Roger Tyssen Lane, M.B. Camb.; Gordon Alan Macdona Lintott, M.B. Lond.; Leonard Joseph Alphonse Loewenthal, M.B. Liverp.; Harold Edward MacMahon, M.D.; Naguib Bey Mahfouz; Arthur John Rushton O'Brien, M.B. Edin.; Matthew Burrow Ray, D.S.O., M.D. Edin.; Eric Camillo Ritter, M.B. Glasg.; Cuthbert Harry Rogerson, M.D. Lond.; Martin Richard Thomas, M.B. Lond.; Harold Williamson, M.D. Durh.; Alexander Louis Wingfield, M.B. Lond.; and Barbara Edith Woodhead, M.B. Birm.

Licences were conferred upon 166 candidates (146 men and 20 women) who have passed the final examination of the Conjoint Board, and have complied with the by-laws of the College. The following are the names and medical schools of the successful candidates:—

A. K. Acharya, Calcutta and West Lond.; A. R. Agati, St. Thos.; Helen M. B. Alcock, King's Coll.; E. C. Allibone, Leeds; J. E. O. Amegatcher, Camb. and St. Thos.; J. B. Andosca, Boston and King's Coll.; R. A. Andrews, Camb. and Guy's; M. Appelman, St. Bart.'s; R. C. B. Barbor, Camb. and St. Thos.; A. H. Bartley, Bombay and West Lond.; C. H. D. Bartley, Camb and St. Thos.; H. H. Bayley, Camb. and King's Coll.; R. A. Binning, Camb. and St. George's; L. C. Bousfield, Middx.; J. Boyle, St. Mary's; Joyce M. Brockington and Edith J. R. Browne, Royal Free; J. C. H. Browne, Middx.; A. G. Butters, St. Bart.'s; N. A. Buxton, Camb. and Middx.; E. M. Buzzard, Oxon and St. Thos.; H. Cameron, Guy's; Ruth M. Campbell, Bengal and Royal Free; A. M. R. Cann, Middx.; H. Caplin, London; C. M. Carlyle-Gall, St. Thos.; R. Carpenter, St. Bart.'s; R. M. Clarke, Middx.; C. D. Clements, Univ. Coll.; C. J. Cobbe, St. Thos.; A. N. F. Critchley, St. George's; J. H. J. Crosse and T. M. Daniel, Camb. and St. Bart.'s; H. H. Davies, St. Bart.'s; D. W. A. De Gazon, Univ. Coll.; Audrey P. Dence, Royal Free; Rosalind M. S. Derham, Bristol; A. E. De Sa, Bombay and Middx.; A. M. Desmond, London; J. A. Dhacka, Bombay and Univ. Coll.; Lynette Dowsett, Royal Free; F. W. Dunn, Charing Cross; C. E. Elliott, Camb. and St. George's; H. J. Fenn, King's Coll.; A. B. R. Finn, Camb. and St. Thos.; J. M. Fleming, London; P. A. Flood, Camb. and St. Thos.; J. F. A. Forster, Guy's; J. A. C. Franklin, St. Thos.; Violet Fry, Bristol; L. B. Furber, St. Bart.'s; W. R. Gavin, Camb. and St. Thos.; S. W. Gillman, Univ. Coll.; Bessie W. Goodwill, Birmingham; H. W. Gordon, Witwatersrand and London; R. I. N. Greaves, Camb. and St. Mary's; J. Greenhalgh, Guy's; T. F. Greenwood, Middx.; G. D. Hadley, Camb. and Middx.; G. J. Hamilton, St. Bart.'s; W. H. Hamilton, Guy's; J. W. Hannay, Camb. and London; J. Hardman, Birmingham; J. H. T. Harrington, Oxon. and St. Mary's; L. D. Harris, Cornell and St. Mary's; T. N. Hart, Camb. and Manchester; Violet C. Hart, Royal Free and West London; A. E. M. Hartley, Camb. and St. Mary's; L. A. Hawkins, Camb. and London; Barbara D. F. Hay-Cooper, Royal Free; J. N. Heales, Bristol; D. F. Heath, Birmingham and Durham; R. R. Henderson, St. Thos.; T. S. Heslop, Manchester; R. Hill, St. Mary's; I. W. Hockley, St. Thos.; N. T. Holden, Camb. and Westminster; R. D. Holloway, Camb. and St. George's; M. H. Hosny, Birmingham; A. G. Hounslow, Univ. Coll.; D. A. Hovenden, St. Thos.; H. G. Howitt and G. B. Hughes, London; N. G. Hulbert, Camb. and St. Bart.'s; J. A. C. Hunter, Guy's; D. B. Hyslop, Charing Cross; R. S. Illingworth, Leeds; A. Innes, Camb. and St. Bart.'s; J. E. Jameson, St. Thos.; C. C. Jeffery, London; B. S. Jones, Camb. and London; I. D. Jones, Middx.; A. C. Kanaar, St. Bart.'s; H. R. Kasday, New York and Middx.; L. M. Kelly, St. Thos.; R. L. Kerr, Camb. and St. Mary's; M. A. Khan, Osmania and West London; J. Kingston, London; J. W. J. Knowles, St. Thos.; Hilda I. Lanceley, King's Coll.; K. A. Latter, St. Bart.'s; A. M. Lester, King's Coll.; T. Levitt, Cape and Middx.; Margaret M. C. Louden, Royal Free; D. Lubin, Ohio and Belfast; K. Lumsden, Camb. and St. Bart.'s; W. D. F. Lytle, St. Thos.; W. M. Macleod, St. Thos.; I. Magdi, Cairo and St. Bart.'s; T. F. Malcolm, Manitoba; K. W. Martin, Camb. and St. Bart.'s; L. C. Martin, Camb. and Middx.; J. D. Martin-Jones, Camb. and St. Bart.'s; S. P. Mason, Middx.; H. B. May, Camb. and London; Queenie I. E. May, Royal Free; N. H. Merchant, Bombay and Univ. Coll.; Lida O. Meredith, West London and Royal Free; W. G. Q. Mills, Camb. and St. Thos.; R. H. Moodie, Bristol; J. N. Morris, Univ. Coll.; L. O. Mountford, Camb. and London; D. J. M. Moynahan, St. Bart.'s; J. H. Neal, Middx.; G. P. Neogy, Bengal and London; A. Orlek, Witwatersrand and St. Bart.'s; N. C. Oswald, Camb. and Charing Cross; B. H. Page, Camb. and London; C. G. Parsons, Camb. and Birmingham; J. E. G. Pearson, Oxon. and Middx.; D. S. Piper, Guy's; G. T. Pitts, Camb. and St. Thos.; C. H. G. Price, Bristol; R. E. A. Price, London; Silvia W. Pyddoke, Royal Free; S. Rameshwer, Lucknow and Middx.; T. A. Ratcliffe, Camb. and St. Thos.; K. B. Rogers, St. Mary's; G. H. Saunders, Middx.; K. G. Seager, St. Mary's; B. Selwyn, St. Bart.'s; A. I. Shaw, Univ. Coll.; J. G. Sheldon, Liverpool; T. L. H. Shore, Camb. and London; H. S. Shucksmith, Leeds; M. Shun-Shin, Univ. Coll.; G. E. T. Soden and H. G. Stanton, St. Bart.'s; W. J. Stokes, London; G. L. R. Tapsall, Madras and St. Mary's; W. P. M. Telfer, St. Bart.'s; Elisabeth J. M. Thomas, Univ. Coll.; A. S. Till, Camb. and Middx.; G. C. Tooth, Camb. and St. Bart.'s; Elsie E. Vincent, Royal Free; J. H. Walters, Camb. and King's Coll.; W. F. Walton, Camb. and St. Thos.; C. R. H. Weekes, Camb. and St. Bart.'s; C. W. Warne, Guy's; Elizabeth B. White, Royal Free; P. A. Wilkinson, Guy's; M. Williams, Camb. and St. George's; J. W. Wishart, Manchester; A. R. Wood, Royal Free and Camb.; O. H. M. Woodbridge, Guy's; and A. R. C. Young, St. Bart.'s.

Diplomas in tropical medicine and hygiene were conferred jointly with the Royal College of Surgeons upon the candidates whose names were given in THE LANCET of April 21st (p. 874).

The diploma in gynæcology and obstetrics was conferred jointly with the Royal College of Surgeons upon K. S. Jayakar, Bombay.

Lord Dawson was re-elected representative of the

College on the governing body of the British Postgraduate Hospital and Medical School.

Dr. C. H. Andrewes is delivering the Oliver-Sharpey lectures on May 1st and 3rd on viruses in relation to the ætiology of tumours, and Prof. O. L. V. S. de Wesselow the Croonian lectures on June 5th, 7th, and 12th on arterial hypertension.

Charles Murchison Scholarships in Clinical Medicine.—An examination for this scholarship will be held at the College from June 19th onwards and is open to students of medicine studying in London or Edinburgh. Further particulars will be found in our advertisement columns.

Scottish Conjoint Board

As a result of recent examinations of the conjoint examining board of the Royal College of Physicians and Surgeons of Edinburgh and the Royal Faculty of Physicians and Surgeons of Glasgow, the following candidates have been granted the diplomas of L.R.C.P. Edin., L.R.C.S. Edin., L.R.F.P. & S. Glasg. :—

J. B. Coltman, A. B. Daoud, M. W. M. de Silva, P. J. Duff, M. H. Flinter, T. D. Fraser, T. K. Ghosh, Leonard Grech, Sylvia S. Gunn, M. A. Hayford, J. S. Hunter, I. M. Ali Ismail, W. A. Kennedy, T. A. Kester, Arthur Lucas, Adolph Meyer, P. F. Meyer, M. A. Nasr, M. G. Odendaal, M. K. K. Pillai, A. W. Pollock, Michael Siger, J. K. Swanston, I. I. Thomas, J. F. Tricy, E. B. Weeks, and D. S. Williams.

University of London

The senate are inviting applications for the Laura de Saliceto studentship for the advancement of cancer research, which is of the value of £150 a year. Applications should be sent to the academic registrar of the University, South Kensington, S.W.7, before July 1st.

University of London Medical Graduates Society

The annual meeting and dinner of this society will be held at the Langham Hotel, W., on Tuesday, May 8th, at 7 for 7.30 P.M. Applications for tickets should be sent to the hon. secretaries, 11, Chandos-street, Cavendish-square, W.1, not later than to-day, Saturday, May 5th.

Cambridge Graduates' Medical Club

The annual dinner of the Cambridge Graduates' Medical Club will be held at the Langham Hotel, W., on Wednesday, May 9th, at 7.15 for 7.45 P.M., with the president, Dr. H. Morley Fletcher, in the chair. The honorary secretaries are Dr. F. G. Chandler and Mr. W. D. Doherty, and applications for tickets may be addressed to 10, Upper Wimpole-street, London, W.1.

Glasgow University Club, London

This club will dine at the Trocadero Restaurant, Piccadilly-circus, W., on Friday, May 25th, at 7.15 for 7.30 P.M. Sir Robert Muir, F.R.S., will be in the chair. The honorary secretary may be addressed at 62, Harley-house, N.W. 1.

Aberdeen University Club, London

The ninety-first half-yearly dinner of this club will be held at the Trocadero Restaurant, Piccadilly-circus, W., at 7 for 7.30 P.M., on Thursday, May 17th, with Prof. Alexander Low in the chair. The secretary may be addressed at 16, Tregunter-road, S.W.10.

British College of Obstetricians and Gynæcologists

The quarterly meeting of the council was held on April 27th in the College House, with Dr. J. S. Fairbairn, the president, in the chair. Agnes Marshall Cowan (Manchuria) and Charles Leopold Granville Chapman (Grimsby) were elected to the membership of the College.

The president formally admitted to the fellowship :—

Duncan Coutts, India; Peter Fleming Gow, India; Gordon Grant, Johannesburg; Sydney Nuttall Hayes, India; Maurice Lawrence Treston, India; and James Hayward Willett, Liverpool.

and to the membership :—

Margaret Emily Anderson, Gavin Stiell Brown, John Lloyd Davies, Charlotte Ann Douglas, Gwyneth Griffith, Kathleen Marguerite Douglas Harding, Jocelyn Adelaide Medway Moore, Percy Peltz, John Marshall Scott, and Arthur Joseph Wrigley.

A silver mace was presented to the College by the Gynæcological Club.

Royal College of Surgeons of England

The council invites applications for election to the office of Hunterian professor, Arris and Gale lecturer, and Erasmus Wilson lecturer for the coming year. Particulars will be found in our advertisement columns.

London Jewish Hospital Medical Society

Dr. Charles Singer, professor of the history of medicine in the University of London, will deliver the annual oration of this society on Thursday, May 10th, at 4 P.M., at the London Jewish Hospital, Stepney Green, E. The subject of the lecture will be the contrast between ancient and modern science.

Will Edmonds Clinical Research Fund

A Fellow is to be elected in June who will receive a salary of £500 under this fund. He must devote the whole of his time to clinical research in a metropolitan hospital, and will be eligible for re-election annually up to a term of five years. Applications should be sent, in proper form, to the honorary secretary of the fund, 68, Great Cumberland-place, London, W.1, not later than June 1st.

Cremation Conference

The Federation of Cremation Authorities and the National Association of Cemetery and Crematorium Superintendents are holding the third annual joint conference at Birmingham from June 25th to 28th. Sir Gilbert Barling is among those who will read papers.

Shenley Mental Hospital

The Middlesex county council announce that the King, who will be accompanied by the Queen, has consented to open this new hospital, near Radlett, Hertfordshire, on Thursday, May 31st.

Norfolk and Norwich Hospital

Last year this hospital treated 6422 in-patients, the largest number on record; the income of £54,232 also exceeded all previous figures, and left a credit balance of £2947.

East Suffolk and Ipswich Hospital

Last year the contributory scheme of this hospital produced £31,230, which was 59 per cent. of its total income. Every firm in Ipswich is a member.

Liverpool Medical Institution

The fifth Hugh Owen Thomas memorial lecture will be given in the institution on Thursday, May 10th, at 4.30 P.M., by Mr. John Fraser, regius professor of clinical surgery in the University of Edinburgh. Prof. Fraser will speak on lipoid granulomatosis of bone.

A Five-day Week

During the present summer a five-day week will be worked in the Nottingham factories of Boots Pure Drug Company, which employ 5000 people. The premises will be closed from Friday evening until Monday morning, and there will be no reduction of pay. The scheme is at present experimental, but if the results, on review in September, are found to be satisfactory, it may later become permanent—at any rate in the summer months. Lord Trent, the chairman of directors, announces that his firm hope next year to arrange some form of extra holidays, with pay, for their retail employees.

Medical Research Fellowships

The Rockefeller medical fellowships for 1934–35 will shortly be awarded by the Medical Research Council. The value of these fellowships will be not less than £350, exclusive of allowances, and they are given in accordance with the wishes of the Rockefeller Foundation, to graduates who have had some training in research work in the primary sciences of medicine, or in clinical medicine or surgery, and are likely to profit by a period of work at a university or other chosen centre in the United States before taking up positions for higher teaching or research in the British Isles. In special circumstances the fellowships may be tenable at centres of research not in America. Further particulars are obtainable from the secretary of the Council, 38 Old Queen-street, Westminster, London, S.W.1. Applications must be made by June 1st.

Navy Medical Compassionate Fund

At the quarterly meeting of the directors of this fund, held on April 19th, with Surgeon Vice-Admiral Sir Reginald Bond, medical director-general of the navy, in the chair, the sum of £235 was distributed.

University College, London

The fellows of University College held their annual dinner at the college last Monday with Sir John Rose Bradford, M.D., F.R.S., chairman of the college committee, in the chair. Before dinner, those who had been recently elected were admitted to the honorary fellowship or fellowship by the chairman. Emeritus Professor Karl Pearson, F.R.S., is among the new honorary fellows and Mr. Alan Sterling Parkes, D.Sc., F.R.S., among the new fellows.

The Ministry of Health

Mr. E. J. Maude, C.B., has been appointed deputy secretary to the Ministry of Health in succession to Sir Arthur Lowry, C.B., deputy secretary and chief general inspector, who has retired after 42 years of service in the Local Government Board and the Ministry of Health. Mr. T. D. Harrison succeeds Mr. Maude as solicitor and legal adviser to the Ministry, and Mr. H. A. Leggett, C.B., director of establishments, will act as chief general inspector also.

Conference of Voluntary Hospitals

On Wednesday June 13th, the Prince of Wales will open a Conference of Voluntary Hospitals of Great Britain and Ireland, at the Guildhall, London, E.C.2. The speakers at the conference will include Sir Robert Bolam, Mr. E. Rock Carling, Lord Horder, Dr. René Sand and Sir George Newman, and it will end, with the annual meeting of the British Hospitals Association, on Saturday, June 16th. The Duke of York is to preside over the conference dinner at the Guildhall on the 14th. Particulars may be had from the organising secretary at 12, Grosvenor Crescent, London, S.W.1.

National Hospital, Queen-square

The annual report of this hospital for nervous diseases states that no material progress has been made with the extension and rebuilding scheme, but the reconstruction of the surgical department is being strongly urged by the medical committee which points out that if the hospital "is to maintain its reputation" its recommendations "should be put into effect without delay." Last year there were 1459 in-patients whose average stay was 44 days and average weekly cost £3 9s. 6d. Expenditure exceeded income by £3817, and brought the deficits of six successive years to £27,000.

Worthing Hospital

Sir E. Cooper Perry has succeeded the late Mr. Robert W. Charles as chairman of the governors, and at the annual meeting on March 29th he announced that it had been decided to proceed to a new maternity block which would increase the number of beds from 67 to 78. The deficit on the year's working amounted to £1125. The governors were of the opinion that the Sussex Provident Scheme and the household box scheme were two sources of income most likely to increase. At present each brought to the hospital over £500 a year. The special appeal during 1933 for £4000 for the maternity and pay-patients' wards had raised £3783.

National Health Insurance in South Africa

In the Union House of Assembly at Capetown on March 27th, in reply to a question by Dr. E. P. Baumann whether the Government had taken into consideration the advisability of establishing a State Medical Service in the Union, the Minister of Public Health, Mr. J. H. Hofmeyr, said: "If, as is assumed, the hon. member means by a State medical service a contributory scheme of health insurance such as that in force in Great Britain or Germany, it is not considered practicable at present to establish such a service." The Minister added that he hoped shortly, in connection with the Budget, to give the House full information in regard to provision for the needs of the large section of the population unable, under existing conditions, to secure medical attention.

Donations and Bequests

Dr. Edward John Cave, of Bath, who died on Feb. 16th left estate of the value of £49,679, with net personalty £47,547. He left £6000 to St. Bartholomew's Hospital, for an entrance scholarship to be known as the Helen Cave memorial scholarship.—The late Mr. Joseph Bourne Bradley, of Dudley, Worcs, among other bequests, left £400 to the Dudley District and Bradley District Nursing Home; £400 to the Guest Hospital, Dudley; and £400 to the Royal Orthopædic and Spinal Hospital, Birmingham.—Under the will of the late Mr. Thomas Keaveney, J.P., of Belfast, the Mater Infirmorum Hospital, Belfast, will receive £1000 for a "Keaveney Bed."—The late Sir Alexander Lyle, among other bequests, left £1500 or such larger sum as may be required for the endowment of a bed in the Perth Royal Infirmary, to be called "The Lyle Bed" and £1000 to Greenock Hospital and Infirmary.

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY, May 8th.

Therapeutics and Pharmacology. 3.30 P.M. Annual General Meeting (at the Pharmaceutical Laboratory, University College). Demonstrations: Sir William Bragg and Mr. R. Paul: 1. Apparatus for Prolonged Artificial Respiration. Katharine H. Coward: 2. Estimation of Antineuritic Vitamin. F. J. Dyer: 3. Estimation of Parathyroid Hormone. J. C. Gage: 4. Standardised Preparation of Digitalin. H. Barcroft: 5. Increase of Systemic Flow Following Occlusion of the Thoracic Aorta. S. L. Cowan: 6. The Rein Thermo-stromuhr. W. Feldberg and O. Krayer: Liberation of Acetylcholine by Dog's Heart during Stimulation of the Vagus. G. W. Theobald: The Influence of Changes in Intra-ureteric Pressure on Water Diuresis. 5 P.M. Communications: G. W. Theobald: An Antidiuretic Substance in the Ultrafiltrate of Blood from Eclamptic Patients. H. R. Ing: The Pharmacological Action of Quaternary Ammonium Salts. B. Szabuniewicz: The Alleged Occurrence of Water Diuresis as a Conditioned Phenomenon. G. W. Theobald and E. B. Verney: Water Diuresis and its Inhibition after Complete Denervation of the Kidney.

Psychiatry. 8.30 P.M. Annual General Meeting. Dr. A. Adler. Paper: Aspects of Delinquency.

WEDNESDAY.

Surgery: Subsection of Proctology. 5 P.M. Annual General Meeting. Surgical Treatment of Carcinoma of the Colon; Discussion, to be opened by Dr. Fred W. Ranken (Lexington, Kentucky) and Dr. T. de Martel (Paris), followed by Sir Charles Gordon-Watson and Mr. J. P. Lockhart-Mummery.

FRIDAY.

Clinical. 4 P.M. Cases of Affections of the Gall-bladder: Mr. Mortimer Woolf, Dr. Dorothy Hare, Mr. Cecil Joll, Dr. Charles Newman, and Dr. J. E. A. Lynham. 4.45 P.M. Annual General Meeting. Short Papers on Gall-bladder: Prof. H. H. Woollard, Dr. C. E. Newman, Dr. H. K. Graham Hodgson, and Mr. A. J. Walton.

Obstetrics and Gynæcology. 8.15 P.M. Annual General Meeting. Discussion on Genital Prolapse, to be opened by Mr. Victor Bonney, Prof. Fletcher Shaw, Prof. A. Leyland Robinson, and Dr. C. A. Robinson.

Physical Medicine (at Harrogate). Annual General Meeting.

SATURDAY.

Physical Medicine (at Harrogate).

MEDICAL SOCIETY OF INDIVIDUAL PSYCHOLOGY.

THURSDAY, May 10th.—8.30 P.M. (at 11, Chandos-street, W.), Dr. Mary Ferguson and Dr. Hilda Weber: Case Reports Illustrating Menopausal and Post-menopausal Neuroses.

SOUTH-WEST LONDON MEDICAL SOCIETY, Bolingbroke Hospital, Bolingbroke-grove, Wandsworth Common.

WEDNESDAY, May 9th.—9 P.M., Mr. C. P. G. Wakeley: Head Injuries.

PADDINGTON MEDICAL SOCIETY.

TUESDAY, May 8th.—9 P.M. (at the Gt. Western Royal Hotel, Paddington), Addresses by Representatives on the Work of the London Panel Committee. The meeting will be open for discussion on any matter connected with the N.H.I.

LONDON JEWISH HOSPITAL MEDICAL SOCIETY, Stepney Green, E.
THURSDAY, May 10th.—4 P.M., Prof. Charles Singer: The Contrast between Ancient and Modern Science. (Annual Oration.)

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, May 7th, to SATURDAY, May 12th.—MAUDSLEY HOSPITAL, Denmark Hill, S.E. Course in Psychological Medicine. Afternoons.—ST. JOHN'S HOSPITAL, Leicester-square, W.C. (open to non-members). Course in Dermatology. Afternoons and evenings.—ST. PETER'S HOSPITAL, Henrietta-street, W.C. Advanced Course in Urology. All day.—NATIONAL TEMPERANCE HOSPITAL, Hampstead-road, N.W. Sat., at 3 P.M. Demonstration of Cases dealing with Blood Diseases, by Dr. H. L. Marriott.—MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W. Tues., at 2.30 P.M. Lecture-demonstration on Digitalis, by Dr. A. E. Clark-Kennedy.—PANEL OF TEACHERS. Individual clinics in various branches of Medicine and Surgery are available daily by arrangement in advance with the Fellowship of Medicine. Courses of instruction arranged by the Fellowship of Medicine are open only to Members and Associates unless otherwise stated.

ST. MARY'S HOSPITAL INSTITUTE OF PATHOLOGY AND RESEARCH, Paddington, W.
THURSDAY, May 10th.—5 P.M., Prof. J. B. S. Haldane: Experimental Study of Diathesis.

HOSPITAL FOR SICK CHILDREN, Gt. Ormond-street, W.C. (Last of 2 Weeks' Course.)
MONDAY, May 7th.—10 A.M., Dr. Hutchison: The Food Requirements of the School-child. 11 A.M., Mr. Lloyd: Plaster-of-Paris Technique. 12 noon, Dr. Wyllie: Medical Cases. 2 P.M., Dr. Thursfield: Ward Visit. 3 P.M., Dr. Nabarro: Congenital Syphilis.
TUESDAY.—10 A.M., Mr. Browne: Treatment of Talipes. 11 A.M., Dr. Cockayne: Ward Visit. 12 noon, Mr. Higgins: Out-patients. 2 P.M., Dr. Ellis: Obesity in Children. 3 P.M., Dr. Payne: The Use of the Ketogenic Diet.
WEDNESDAY.—10 A.M., Dr. Gray: Diseases of the Skin. 11 A.M., Dr. Paterson: Genito-urinary Infections. 12 noon, Mr. Barrington-Ward: Out-patients. 2 P.M., Mr. Apperley: Orthodontic Treatment. 3 P.M., Dr. Signy: Diagnosis from the Cerebro-spinal Fluid.
THURSDAY.—10 A.M., Dr. Hutchison: Ward Visit. 11 A.M., Mr. Tyrrell-Gray: Abdominal Pain. 12 noon, Dr. Sheldon: Medical Cases. 2 P.M., Mr. Higgins and Dr. Sington: Tonsillectomy and its Anæsthesia. 3 P.M., Dr. Nabarro: The Treatment of Vulvovaginitis.
FRIDAY.—10 A.M., Mr. Addison: Out-patients. 11 A.M., Dr. Pearson: Gastro-enteritis in Infants. 12 noon, Dr. Bruce Pearson: Common Symptoms and their Interpretation. 2 P.M., Dr. Frew: Ward Visit. 3 P.M., Dr. Payne: The Use of the Sedimentation-rate.
SATURDAY.—10 A.M., Dr. Shires: Artificial Sunlight Therapy. 11 A.M., Dr. Wyllie: Nephritis in Children. 12 noon, Dr. O'Reilly: Rheumatic Carditis.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland-street, W.
WEDNESDAY, May 9th.—5 P.M., Dr. J. M. H. Campbell: Cardiac Arrhythmias (St. Cyres Lecture).

ST. PAUL'S HOSPITAL, Endell-street, W.C.
WEDNESDAY, May 9th.—4.30 P.M., Mr. C. H. Mills: Some Interesting Urological Cases; with Pathological Specimens and Radiograms.

CENTRAL LONDON THROAT NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.
MONDAY, May 7th, to SATURDAY, May 12th.—Last Week of Intensive Course in Laryngology, Rhinology, and Otology.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.
MONDAY, May 7th.—5 P.M., Dr. H. MacCormac: Treatment of Syphilis.
TUESDAY.—5 P.M., Dr. W. N. Goldsmith: The Nervous System in Relation to Skin Diseases.
THURSDAY.—5 P.M., Dr. J. M. H. MacLeod: Infections of the Skin with Yeast-like Organisms.
FRIDAY.—5 P.M., Dr. W. K. Sibley: Alopecia.

CHADWICK PUBLIC LECTURES.
TUESDAY, May 8th.—5.30 P.M. (in the Hall of the Royal Society of Tropical Medicine, Portland-place, W.), Dr. Jane Walker: Village Hygiene.

UNIVERSITY OF BIRMINGHAM.
TUESDAY, May 8th.—3.30 to 5 P.M. (at the General Hospital), Dr. H. H. Sampson: Demonstration of Surgical Cases.
WEDNESDAY.—4 P.M. (in the Lecture Theatre of the Medical Faculty Buildings), Prof. J. B. S. Haldane: Contributions of Genetics to Medical Science. (First of three Lectures).
FRIDAY.—3.30 to 5 P.M. (at the Queen's Hospital), Mr. C. Rudd: Demonstration of Cases of Eye Disease.

MANCHESTER ROYAL INFIRMARY.
TUESDAY, May 8th.—4.15 P.M., Mr. P. R. Wrigley: Œsophageal Obstruction.
FRIDAY.—4.15 P.M., Dr. T. H. Oliver: Demonstration of Medical Cases.

LEEDS GENERAL INFIRMARY.
TUESDAY, May 8th.—3.30 P.M., Mr. Munby: Demonstration of Aural Cases.

GLASGOW POST-GRADUATE LECTURES.
WEDNESDAY, May 9th.—4.15 P.M. (at the Victoria Infirmary), Dr. W. H. Brown: Skin Cases.

Vacancies

For further information refer to the advertisement columns

Ashton-under-Lyne District Infirmary.—H.S. At rate of £150.
Battersea Metropolitan Borough.—M.O.H. £1200.
Bedford County Hospital.—First and Second H.S.'s. At rate of £165 and £140 respectively.
Birmingham, Erdington House.—Deputy M.O. £800.
Birmingham, Selly Oak Hospital.—Cas. O. At rate of £200.
Birmingham, Yardley Green-road Sanatorium.—Jun. M.O. At rate of £200.
Bolingbroke Hospital, Wandsworth Common, S.W.—H.S. At rate of £120.
Brighton, New Sussex Hospital for Women and Children.—H.P. At rate of £100.
Cambridge, Addenbrooke's Hospital.—H.P. At rate of £130.
Cancer Hospital, Fulham-road, S.W.—Laryngologist.
Cardiff, City Lodge Hospital.—Jun. Res. M.O. £250.
Cardiff, Llandough Hospital.—Jun. Res. M.O. At rate of £100.
Chelmsford and Essex Hospital.—H.S. At rate of £150.
Chichester, Royal West Sussex Hospital.—Sen. and Jun. H.S. £175 and £125 respectively.
Coventry and Warwickshire Hospital.—H.S. (Male). Also Cas. O. (Male). Both at the rate of £125.
Fareham, Hants, Knowle Mental Hospital.—Asst. M.O. £550.
Glasgow Royal Infirmary, Biochemical Dept.—Clin. Biochemist.
Harrow U.D.C.—M.O.H. £1000.
Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—Director of Radiological Dept.
Hospital for Sick Children, Great Ormond-street, W.C.—Surgeon.
Huddersfield, Mill Hill Isolation Hospital, &c.—Res. M.O. £350.
Ilford, King George Hospital.—Deputy Res. M.O. £200. H.S. At rate of £100.
Italian Hospital, Queen-square, W.C.—H.S. At rate of £100.
Leamington Spa, Warneford General Hospital.—Res. H.P. At rate of £150.
Leeds General Infirmary.—Hon. Surgeon.
Leeds, Ministry of Pensions Hospital, Chapel Allerton.—Cons. Surgeon. £400.
Leicester City General Hospital.—Jun. Res. M.O. £300.
London Jewish Hospital, Stepney Green, E.—Res. M.O. and H.P. Also Cas. O. Each at rate of £150. And H.S. At rate of £100.
London University.—Geoffrey Duveen Travelling Studentship. £450. Also University Chair of Pharmacology. £1000.
Manchester Royal Infirmary.—Hon. Asst. Surgeon.
Margate, Royal Sea-Bathing Hospital.—Res. Asst. Med. Supt. £500.
Market Drayton, Cheshire Joint Sanatorium.—H.P. £250.
Merthyr Tydfil County Borough.—Asst. M.O.H. and Asst. School M.O. £500.
Middlesex Hospital, W.—Asst. for Radium Therapy Dept.
Mildmay Mission Hospital, Austin-street, E.—Asst. Cas. O. and Jun. Res. M.O. At rate of £125 and £100 respectively.
Miller General Hospital, Greenwich-road, S.E.—Cas. O. and Out-patient O. Each at rate of £150. Also H.P. and H.S. Each at rate of £100.
National Temperance Hospital, Hampstead-road, N.W.—Hon. Asst. Dental Surgeon.
Newcastle-upon-Tyne, Royal Victoria Infirmary.—Jun. Surg. Reg. £150.
Oswestry, Robert Jones and Agnes Hunt Orthopædic Hospital.—H.S. At rate of £200.
Paddington Green Children's Hospital, W.—Hon. Surg. to Ear, Nose and Throat Dept.
Portsmouth, Saint Mary's Hospital.—Jun. Asst. Res. M.O. £250
Queen Charlotte's Maternity Hospital, Marylebone-road, N.W.—Two Res. Anæsthetists. Each at rate of £100.
Queen's Hospital for Children, Hackney-road, E.—Surgeon to Ear, Nose and Throat Dept.
Reading, Royal Berkshire Hospital.—Res. Anæsthetist. At rate of £150.
Royal Chest Hospital, City-road, E.C.—Res. M.O., and H.P. At rate of £150 and £100 respectively.
Royal College of Physicians of London.—Charles Murchison Scholarship in Clinical Medicine.
Royal College of Surgeons of England.—Professors and Lecturers.
Royal Northern Hospital, Holloway, N.—H.P., and H.S. Each at rate of £70. Also Gynæcologist to V.D. Dept.
Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—Hon Physician.
Salford City Education Committee.—Asst. School M.O. £520.
Salford Royal Hospital.—H.S. At rate of £125.
Sheffield Children's Hospital.—H.P. At rate of £100.
Sheffield, Jessop Hospital for Women.—H.S. to Maternity Dept. At rate of £120.
Sheffield Royal Hospital.—Res. Ophth. H.S. £120. Also Asst. Cas. O. At rate of £80.
Southend Municipal Hospital.—Sen. Asst. M.O. £350.
Swansea County Borough.—Asst. M.O. £500.
Wakefield, County Institution, Batley.—Temp. M.O. £500.
Weir Hospital, Grove-road, Balham, S.W.—Jun. Res. M.O. £150.
West London Hospital, Hammersmith-road, W.—Hon. Dermatologist. Also Hon. Asst. Anæsthetist.
Will Edmonds' Clinical Research Fund.—Fellowship. £500.
Wolverhampton Royal Hospital.—H.S. At rate of £100.

The Chief Inspector of Factories announces vacancies for Certifying Factory Surgeons at Grosmont and Doncaster, Yorks.

NOTES, COMMENTS, AND ABSTRACTS

THE GREEK ANTHOLOGY AND MEDICINE

Dr. A. MAUDE sends the following note, the result of reading the classical originals assiduously. The medical profession, he writes, was fair game for the satirical authors of Greek epigram. Among the 7000 versicles of the Anthologia Palatina, which ranges over 12 centuries of writers, are a large number directed against medicine. Notable among the writers are Lucilius and Nicarchus, both in the first century A.D. Together they are represented by 165 specimens in the Anthology, a large proportion of which are directed to medical practitioners. The following are good examples, which I have rendered into English verse, preserving the Greek meaning as closely as possible.

SIMON THE OCULIST

Ἤν τιν' ἐχῃς ἐχθρὸν Διονύσιε μή κατορώρυγ
Τὴν Ἶσιν τούτῳ μηδὲ τὸν Ἁρποκράτην.
Μηδ' εἴτις τυφλοὺς ποιεῖ θεός ἀλλὰ Σίμωνα
Καὶ γνῶσῃ τί θεὸς καὶ τί Σίμων δύναται.
Nicarchus, Anth. Pal., xi., 115.

Dionysius, if there's any man to whom you're not inclined,
Don't call upon Harpocrates, or a god who'll strike him blind
(Such as Isis for example), but on Simon; then you'll know
The capacity and faculty that God and Simon show.

SCIENTIFIC SURGERY

Χειρουργῶν ἔσφαξεν Ἀκεστορίδην Ἀγέλαος
ζῶν γὰρ χωλεύειν φησὶν ἐμιλλε τάλας.
Nicarchus, Anth. Pal., xi., 21.

Agelaus operated; Acestorides he died;
"Ah! well, he'd have been lame for life, poor man," the surgeon cried.

GOD AND DOCTOR

Τοῦ λιθίνου Διὸς ἐχθὲς ὁ κλινικὸς ἥψατο Μάρκος
Καὶ λίθος ὤν, καὶ Ζηνὸς σήμερον ἐκφέρεται.
Nicarchus, Anth. Pal., xi., 113.

On Zeus' marble statue Doctor Marcus called, they say,
And though he'd marble and a god, his funeral's to-day.

There is a play on the word ἅπτεσθαι (midde aorist) which is told in two ways: (1) of a suppliant embracing the knee or hand of a god (ἥψατο being the active aorist); (2) of a disease fastening on a patient. Zeus "caught the Marcus," as Beatrice says in "Much Ado about Nothing," 1, i. "God help the noble Claudio! if he have caught the Benedict" (Mackail, "Greek Anthology"). Clearly ἅπτω here means to "take over" a patient. Zeus came to have a funeral because Dr. Marcus had taken him over.

A DEADLY DREAM

Ἑρμογένη τὸν ἰατρὸν ἰδὼν Διόφαντας ἐν ὕπνοις
οὐκέτ' ἀνηγέρθη, καὶ περίαμμα φέρων.
Lucilius, Anth. Pal., xi., 257.

Diophantus wore an amulet, in spite of that he died;
For he dreamt he saw Hermogenes the doctor at his side.

ARTIFICIAL PYREXIA IN SCHIZOPHRENIA

INJECTION of sulphur dissolved in oil is a convenient means of inducing pyrexia, and has been used for this purpose in cases of schizophrenia since K. Schroeder in 1929 reported favourably on six cases treated with Sulfosin (THE LANCET, 1929, ii., 1081). One of Schroeder's compatriots, Dr. J. Ravn,[1] besides describing his own experience, has set himself the task of sifting the accumulated records, and of comparing the results with those formerly obtained. Anyone tempted to be enthusiastic over a new treatment for schizophrenia should keep in mind three facts: the diagnosis is apt to be wrong; spontaneous remissions are common; and the schizophrenic is very susceptible to suggestion. In his first table, dealing with 1534 patients belonging to the pre-sulfosin period, Ravn shows in what a considerable proportion of cases a cure or a partial recovery was effected. In his second table, dealing with 366 sulfosin-treated patients, there are only 52 deriving permanent benefit, and 76 transitory benefit. There were 17 deaths, and as many as 221 patients whose condition was unaffected. Loberg, who has treated 135 patients with sulfosin, claims only 2 cures, with 10 other cases in which permanent improvement was achieved. There is a striking similarity in the proportion of cases classed as uncured in Ravn's two tables.

[1] Nordisk Med. Tidsk., Jan. 27th, 1934.

INSTITUTE OF CHILD PSYCHOLOGY

THE Children's Clinic founded by Dr. Margaret Lowenfeld in 1928 has weathered the difficulties of economic depression and is now safely entrenched as the Institute of Child Psychology at 26, Warwick-avenue, London, W.9. It provides treatment and advice for a wide range of ailing children, whether the ailment consists of disturbance of emotional life (33 per cent.), chronic physical disorder such as epilepsy, asthma, or enuresis (31 per cent.), failure of social adjustment at school or at home (23 per cent.), difficulty in fitting into the educational curriculum (6 per cent.) or in speech (8 per cent.). No mentally deficient child is accepted. The Institute consists of a series of inter-related departments, and the case record of each child includes family and personal history, school record, mental tests, reports of playroom workers—the intention being for such records to form a permanent stepping-stone to further knowledge. Children are sent to the Institute from all parts of Greater London by the heads of L.C.C. and other schools, care committees, welfare societies, as well as medical practitioners. The course of treatment consists of a scientific adaptation of free play, and in the majority of cases is necessarily long. The Institute is available for the training of physicians, psychologists, teachers, and social workers in the special methods used there. Total attendances last year numbered 590 and the individual hours of treatment 1157. A good idea of the varied work of the Institute is given in the annual report in the form of representative cases of which two are here reproduced.

JAMES a tall, fresh-looking, well-built boy of 12¼, with a worried expression, had suffered since his first year from chronic eczema, for which he had received constant medical treatment throughout the years. He had never been clear of eczema except once—for a period of three weeks—when his whole body was entirely covered with ointment and bandages. When he was 10 years old he had his first attack of asthma, which commenced while at the seaside. The outbursts of irritability and bad temper occurred on the slightest provocation; he moaned and cried persistently if any wish was frustrated. When upset emotionally he suffered from diarrhœa, and had a habit of furiously scratching himself. He fainted if he saw something obnoxious to himself, or if the atmosphere was slightly impure. He had always slept poorly and prevented others sleeping and got on badly with his two brothers, being a constant source of irritation in the family on account of his tempers and quarrelsomeness. He had the reputation of being without a single school friend. His position in the family was the second of three children all of school age.

After three months' attendance at the Institute the mother reported a great improvement in James' disposition and behaviour at home. He was becoming increasingly helpful and kindly and adjusting himself much more successfully to his environment. She was advised to cease bandaging and using ointments and to take no notice of the scratching. All medical treatment was stopped. At first the eczema was worse, but as the emotional state of the child improved so did the skin.

James began to make friends with other boys outside the home. During the holidays, after an incident that annoyed James, he had his only attack of asthma since he came to us and the eczema was worse. On returning in September the improvement in the whole condition of this boy was

accelerated and 8 months after the commencement of treatment the eczema had completely cleared up.

That was three months ago and James' skin is still clear and there have been no further attacks of asthma.

ETHEL was the elder of two girls with a young, hearty mother and an affectionate father. She wept most of the day, started when spoken to and was terrified of the dark. No medical reason for her pale face and thin body and the dark rings under her eyes could be discovered. At school she was said to be exceedingly slow and unable to concentrate. During her work at the Institute, layer upon layer of fear and struggle were shown to be in her mind. The bluff, hearty mother, having no other outlet for her practical emotions, had found it impossible to allow Ethel to grow out of that state of babyhood in which everything had to be done for her. The violent revolt of the child's nature resulted in the fears and nervousness.

When Ethel first came to the Institute she sat about listlessly and was unable to carry out any task calling for concentration. Later, she quickly improved. Interviews with the mother modified her attitude to the child. Through the work carried out in the playroom the inhibitions in Ethel's mind slowly cleared away, her physique and appearance improved, and, from being a backward child, she became, by the time she was discharged, equal in ability to any normal child of her age.

Further information may be obtained from the Secretary of the Institute at 26, Warwick-avenue, London, W.9.

BUDGET RELIEF ON SMALL INCOMES

CHARTERED ACCOUNTANT, who as a member of a recognised professional body does not subscribe his name, writes: "With reference to the paragraph in your journal of last week drawing attention to the limited relief given by the Budget to those with small incomes, much of the point made by the income-tax consultant was lost in the choice of examples which he gave. The emergency budget of 1931–32 increased the standard rate from *4s. 6d.* to *5s.*, at the same time cutting severely the allowances; in 1934–35 the standard rate is again reduced but none of the allowance cuts are restored, entailing a definite hardship. Taking a married man with one child whose income is all earned, the following table shows that the load on moderate incomes is still a severe one and, further, that the lower the income the greater the hardship still endured.

Income.	Income tax.			Increase 1934–35 over 1930–31
	1930–31	1933–34	1934–35	
£1250	£139 1 6	£178 2 6	£160 6 3	£21 4 9
650	26 10 0	58 2 6	52 6 3	25 16 3
400	4 16 0	15 0 0	13 10 0	8 14 0

The taxation burden of the £1250 a year man is 15 per cent. greater than in 1930–31, whereas his poorer countrymen at £650 and £400 bear an increased load for the current year of no less than 97 per cent. and 181 per cent. respectively compared with pre-emergency conditions. The restoration of the allowances to 1930–31 figures would have given greater benefit to the professional classes as a whole than the 6d. cut in the standard rate of tax."

FUN IN BED[1]

WE have here brought together a number of essays, rhymes, jokes, and problems with the view of cheering the later stages of the sojourn in the hospital or nursing-home by suitable reading. The menu is so varied that every palate must find in it some item that is agreeable, and as a whole a ludicrous feast is provided. Some of the old facetiæ were worth reproducing, some were not, but even in such a comment it should be remembered that there is no standard by which what is generally amusing can be assessed. "The secret of a quick cure," says the editor to the patient, "is to relieve your boredom but not to increase your fatigue," and he and his distinguished collaborators, alive and dead, have done much in the indicated directions. The fun for the intelligent reader lies in the malicious fact that both he and his illnesses, and his doctors, nurses, and their ministrations, are all being mocked at. As a rule the gibes are either in themselves good-natured, or are related to such preposterous circumstances that no serious wound is inflicted. But this is not always so, and the portrait of Miss Lyons as drawn by Mr. Ring Lardner, is a loving piece of cruelty.

[1] Fun in Bed: The Convalescents' Handbook. Edited by Frank Scully. London: Wm. Heinemann, Ltd. 1934. Pp. 271. 7s. 6d.

IN reference to Prof. E. H. Kettle's article on the Detection of Dangerous Dusts, published in our last issue, it should have been stated that this work was done under a grant for expenses from the Medical Research Council.

THE MAKING OF MODERN SPECTACLES.—Theodore Hamblin, Ltd., have issued an invitation to ophthalmic surgeons to their works at 28–32, Aybrook-street, London, W.1 (near High-street, Marylebone), for a demonstration in the making of modern spectacles and ophthalmological instruments. The production of lantern slides for teaching purposes will also be shown. Up to the end of June the demonstration takes place on any week-day at 10.30 A.M. or 2.30 P.M.; Saturdays at 10.30 A.M. only. A tour of the works takes a little under two hours.

Appointments

HARVEY, R. S., M.B., B.S. Lond., has been appointed Hon. Medical Officer in Charge, Injection Clinic, Royal Waterloo Hospital for Children and Women.

MILLER, ARTHUR, F.R.C.S. Edin., D.L.O., Assistant Aurist, London County Council.

NIXON, WILLIAM C. W., M.D. Lond., F.R.C.S. Eng., M.C.O.G., Assistant Obstetric Surgeon, with Charge of Out-patients, to St. Mary's Hospital.

Sheffield Royal Infirmary: WAYNE, E. J., M.B., Ch.B. Leeds, M.R.C.P., Hon. Associate Physician; and RAYNER, G. H., L.D.S. Sheff., Hon. Asst. Dental Surgeon.

Certifying Surgeons under the Factory and Workshop Acts: GRANT, R., M.B., Ch.B. Edin. (Falkirk); MILLER, A., M.B., Ch.B. Glasg. (Larkhall, Lanarkshire); and SAVAGE, E., L.R.C.P. Lond., M.R.C.S. (Caerphilly).

Births, Marriages, and Deaths

BIRTHS

ASERMAN.—On April 24th, at St. John's Wood-terrace, N.W., the wife of Dr. David Aserman, of a daughter.

FORD.—On April 26th, at a nursing-home, the wife of Dr. R. Kelson Ford, St. Olave's Hospital, Rotherhithe, S.E., of a son.

KNOX.—On April 23rd, at High-street, Tring, Herts, the wife of Dr. Norman Knox, of a daughter.

SWINDELL.—On April 28th, at Westwood-road, Southampton, the wife of Dr. R. S. Swindell, of a son.

MARRIAGES

NIXON—YSEBRAND.—On Feb. 19th, William Nixon, M.D., F.R.C.S., to Miss Vroukje (Vennie) Ysebrand, daughter of the late Mr. and Mrs. Hendrick Ysebrand, of The Hague, Holland, and Durban, South Africa.

DEATHS

RIDDELL.—On April 26th, at Holly House, Plumstead Common-road, Woolwich, Dr. D. F. Riddell, M.C., M.A., M.B., Ch.B., D.P.H.

RUTHERFORD.—On April 25th, suddenly, from heart failure, at Budleigh Salterton, Vickerman H. Rutherford, M.A., M.B., of Cumberland-terrace, Regent's Park, N.W., aged 73.

SPREAT.—On April 24th, at Burrington, Oakleigh Park, Frank Arthur Spreat, F.R.C.S., aged 72.

STURGE.—On April 23rd, the result of an accident, William Howard Sturge, M.D., of Hoddesdon, Herts.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.